



Environmental Assessment  
for  
Mount Vernon Circle Parking and  
Trail Improvements  
George Washington Memorial Parkway



Prepared by the  
U.S. Department of Transportation  
Federal Highway Administration  
Eastern Federal Lands Highway Division  
and the  
U.S. Department of Interior  
National Park Service  
George Washington Memorial Parkway  
Joint Lead Agencies

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# 1. Purpose and Need for Action

## 1.1. Introduction

George Washington's Mount Vernon Estate and Gardens (Mount Vernon) is located in southeastern Fairfax County, Virginia, along the Potomac River. It is the historical home of our nation's first president. While in George Washington's time his estate extended to include more than 8,000 acres, the roughly 500 acres of his property surrounding the actual building and gardens is known as the mansion farm. Mount Vernon can be seen as it was approximately 200 years ago.

**Study Area Description** — **Figure 1-1** shows the location of the study area. The western edge of the study area extends to just west of Old Mount Vernon Road while the eastern edge of the study area reaches almost to Little Hunting Creek. The southern edge of the study area is located just south of the Mount Vernon Traffic Circle ("the circle") while the northern edge of the study area is located just north of Surrey Drive in the Mount Vernon Estate subdivision. The George Washington Memorial Parkway (GWMP), a unit of the National Park Service (NPS), begins at the circle at Mount Vernon. The Mount Vernon Trail, which is a multi-use trail maintained by the NPS, begins in the East Parking Lot for Mount Vernon. Virginia Route 235 enters the study area from the west and turns to the north just west of the circle.

**Parcel and Easement Boundaries** — The property surrounding Mount Vernon is owned in part by the Mount Vernon Ladies' Association (MVLA), and in part by the Federal Government, managed by the NPS. In general, Mount Vernon owns the land south of the wall along Route 235 West, as well as the forested area between Route 235 North and Route 235 West. The majority of the land on both sides of the Parkway is a part of the GWMP. This land is owned by the Federal Government, and is maintained by the NPS. The parcel tracts are described below, and refer to tract numbers shown on **Figure 1-2**.

- Tract 51 — The land north of Mount Vernon Estate and between Route 235 North and the GWMP, owned by the U.S. Government
- Tracts 52-A, 52-B, 52-C-1, and 52-C-2 — The land south of the circle from along the Route 235 West wall to the East Parking Lot, including the entrance area; this land was conveyed from the U.S. Government to Mount Vernon but subject to restrictions
- Tract 53 — The East and West Parking Lots, which are owned by the U.S. Government with a perpetual parking easement to Mount Vernon
- Tract 54 — The land between Route 235 North and Route 235 West, owned by Mount Vernon
- Tract 55 — A 200-foot wide strip along the GWMP from north of Mount Vernon to the Potomac River, which is owned by Mount Vernon with a scenic easement to the U.S. Government

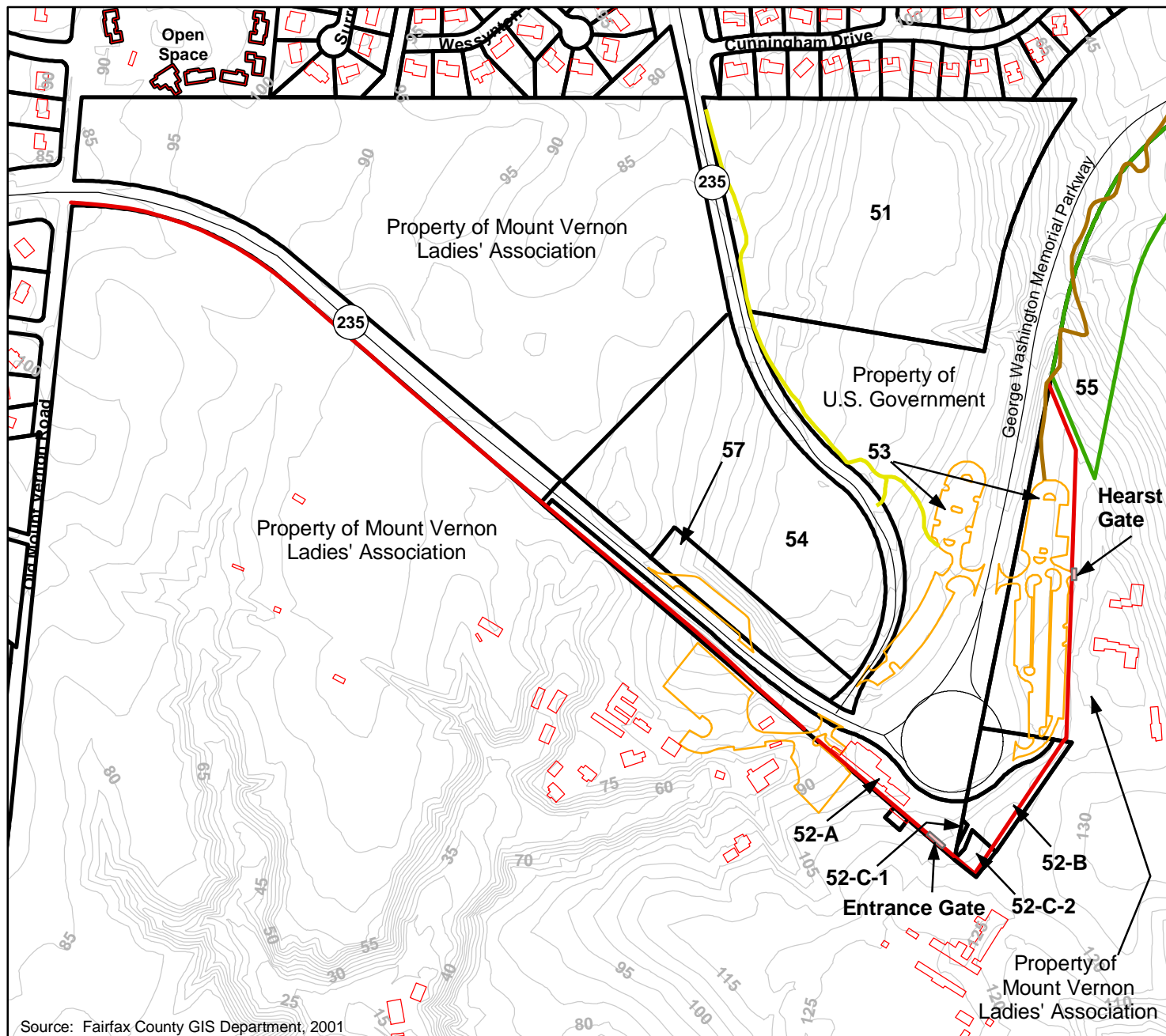


**Mount Vernon Circle  
Environmental Assessment**

**Figure 1-1  
General Study Area**



Source: USGS, 2002



## Mount Vernon Circle Environmental Assessment

**Figure 1-2  
Parcel and Easement Boundaries**

### Legend

- Buildings
- Parking Lots
- Scenic Easement Boundary
- Parcel Boundaries
- Major Roads
- Brick Wall
- Mount Vernon Trail
- Trail

### Tract Identification

- 51 Owned by the U.S. Government
- 52-A,B Conveyed from the U.S. Government to Mount Vernon and subject to restrictions
- 52-C-1, C-2 East and West Lots - owned by the U.S. Government with a perpetual parking easement to Mount Vernon
- 53 Owned by the U.S. Government with a perpetual parking easement to Mount Vernon
- 54 Owned by Mount Vernon
- 55 Owned by Mount Vernon with a scenic easement to the U.S. Government
- 57 Owned by Mount Vernon with a perpetual parking easement and right-of-way to the U.S. Government



0 500 1,000 Feet



- Tract 57 — A 125-foot wide strip along Route 235 West including the post office parking lot, which is owned by Mount Vernon with a perpetual parking easement and right-of-way to the U.S. Government

***George Washington Memorial Parkway (GWMP) History*** — The original section of the GWMP from Washington, D.C. to Mount Vernon was authorized in 1928 as the Mount Vernon Memorial Highway and constructed by the U.S. Department of Agriculture, Bureau of Public Roads. The GWMP was established in 1930 by the United States Congress as a memorial to George Washington under the Capper-Cramton Act, which also established other parklands in the Washington, D.C. metropolitan area. The original section of the GWMP extending from the Arlington Memorial Bridge to Mount Vernon was opened in 1932. Extensions to the GWMP were opened in sections between 1932 and 1966. Since May 1934, the GWMP has been maintained by the National Capital Region of the NPS.

The initial Mount Vernon Memorial Highway (MVMH) segment of the GWMP was listed on the National Register of Historic Places (NRHP) in 1981. The remaining portions of the GWMP were listed on the NRHP in 1995. The GWMP is the first parkway constructed and maintained by the Federal Government and is notable as a memorial to George Washington, and for its state of the art design principles, architectural style, and landscaping elements. Its significance also derives from its purpose, as restated in the Capper-Cramton Act, which expanded the original authorization of the MVMH to establish the GWMP as not only a memorial to George Washington and link to Mount Vernon, but also as a larger gateway to the nation's capital. It connects Washington D.C. to scenic, recreational, and historic sites such as those associated with President George Washington and protecting and preserving the Potomac River shoreline by creating a buffer between the river and commercial development. In addition, the GWMP, as a part of the NPS, follows the guidance set forth in the NPS Organic Act of 1916, whose mission is “to protect the scenery and natural and historic objects and wildlife therein and to provide for the future enjoyment of the same in such a manner...as will leave them unimpaired for the enjoyment of future generations.” Finally, the GWMP is significant due to its listing on the NRHP, which indicates that the land is considered historic and worthy of preserving in its current state.

***Mount Vernon History*** — The land for Mount Vernon was granted to George Washington’s great-grandfather by King George II in 1674. The land remained in the Washington family for nearly two hundred years until George Washington’s great-grandnephew could no longer afford to keep up the estate. In 1858, the MVLA was formed by a charter from the Commonwealth of Virginia to purchase the estate. The MVLA purchased the remaining 200 acres of the property to save the home of the nation’s first president. Since coming under the auspices of the MVLA, Mount Vernon has been fully restored. It receives more than one million visitors a year and is open every day of the year.

***Access to Mount Vernon*** — Mount Vernon can be accessed by vehicle from the southbound GWMP and Route 235. The Mount Vernon Trail, an 18.5-mile long multi-use paved trail located at the north end of the East Parking Lot, permits access to the Mount Vernon area for bicyclists, pedestrians, and joggers.

***Parking and Traffic Operations*** — Currently, three parking lots accommodate automobile and RV traffic to Mount Vernon. The East Lot is located east of the GWMP with one entrance from the circle and one exit onto the GWMP. The West Lot is located west of the GWMP and has an exit on the GWMP and an entrance from Route 235. The Route 235 Lot, which contains a post office, is located along Route 235 West approximately 300 feet west of the circle. During peak

visitation in the spring, summer, and fall, the NPS has allowed vehicle parking in the circle. Tour bus parking is located along the southern edge of Route 235 beginning where the highway turns north and extends approximately 1,450 feet west of the circle. These facilities are described in more detail in **Section 3.5**.

Traffic in the vicinity of Mount Vernon consists of a variety of vehicle types and modes of transportation. Vehicular traffic, including commuter traffic and visitor traffic traveling to and from Mount Vernon, consists of personal automobiles, buses, motorcycles, and bicycles. In addition to vehicular traffic, a high volume of pedestrian traffic is present in the Mount Vernon area. Commercial truck traffic is prohibited on the GWMP and is minimal along the studied sections of Route 235. To access Mount Vernon from the West Lot, pedestrians are required to cross Route 235 using a marked crosswalk.

## ***1.2. Purpose of the Action***

The purpose of this project is to provide improvements (including parking, roadway, sidewalks, and bike trails) to accommodate current and planned demand for parking, to improve traffic operations, and to enhance the safety of pedestrians, motorists, and cyclists in the vicinity of Mount Vernon.

## ***1.3. Need for the Action***

To accommodate the current and planned future facilities at Mount Vernon, remove parking from the circle, and enhance pedestrian, motorist, and cyclists safety in the vicinity of Mount Vernon, additional improvements are necessary. Project need is based on several cumulative factors, including:

- Analysis of existing conditions shows that a deficiency currently exists for parking during periods of peak visitation
- At certain times, pedestrians must cross congested roads to access Mount Vernon from the existing parking areas
- Recent and planned expansion and renovations to the Mount Vernon Estate and Gardens will lead to changes in visitor and pedestrian patterns, including increases in parking demand
- Frequent use of circle as an overflow parking lot impacts the cultural landscape of Mount Vernon and the GWMP

## ***1.4. Description of the Proposed Action***

The Federal Highway Administration, in coordination with NPS and Mount Vernon, proposes to build additional parking spaces for visitors and to enhance pedestrian and bike trails in the vicinity of Mount Vernon.

## 1.5. *Decision to be Made*

The National Environmental Policy Act of 1969 (NEPA) requires consideration of the environmental impacts of proposed federal actions. This Environmental Assessment (EA) has been prepared to assist NPS and FHWA decision-makers in developing solutions to accommodate additional parking and associated traffic and pedestrian safety considerations related to potential changes in visitor patterns to Mount Vernon and the environmental effects of the preferred actions.

## 1.6. *Issues and Impact Topics*

Issues are defined as “environmental effects that might occur if the proposed action or any of the alternatives are undertaken.” This EA contains discussions of the following relevant issues:

- ***Natural Resources*** — Improvements to parking, roadways, sidewalks, and trails in the vicinity of Mount Vernon could have an effect on natural resources such as geology, topography and soils, surface hydrology, wetlands, vegetation, wildlife, etc.
- ***Cultural Resources*** — Improvements to parking, roadways, sidewalks, and trails in the vicinity of Mount Vernon could have an effect on cultural resources such as historic and pre-historic archaeology, cultural landscape/viewshed, etc.
- ***Visitor Use and Park Operations*** — Improvements to parking, roadways, sidewalks, and trails in the vicinity of Mount Vernon could have an effect on visitor use and Park operations such as circulation of pedestrians, vehicles, and bicycles

Impact topics address the resources of concern that could be affected by the range of alternatives for the project. Impact topics are identified based on federal laws, regulations, and orders; NPS Management Policies; and knowledge of limited or easily impacted resources in the project area. This section provides a brief explanation of each impact topic considered in the EA as well as rationale for dismissing certain topics from further consideration.

- ***Natural Environment*** — NEPA; 1916 Organic Act; NPS Management Policies; NPS Director’s Order 77 (Natural Resource Management Guideline); GWMP Resource Management Plan; as well as other NPS and Park policies provide general direction for the protection of the natural abundance and diversity of all of the Park’s naturally occurring communities. This EA will address the impact of alternatives on natural resources (such as trees) that serve as wildlife habitats.
- ***Floodplains*** — Executive Order 11988 (Floodplain Management) requires an examination of the impacts and potential risk involved in placing facilities within floodplains. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) were reviewed to determine the location of floodplains in the study area. This EA will address the impact of alternatives on floodplains and recommended mitigation measures, if necessary.
- ***Wetlands*** — Executive Order 11990 (Protection of Wetlands) requires federal agencies to minimize the loss, destruction, or degradation of wetlands and to enhance their natural and beneficial values. The NPS Management Policies, Director’s Order 2 (Planning Process Guideline) and Director’s Order 12 (NEPA Guideline) provide direction on developments proposed in floodplains and wetlands. Location of wetlands in the study

area were based on a review of National Wetland Inventory (NWI) mapping, a survey of the Mount Vernon-Little Hunting Creek Area by the NPS, and consultation with the Fairfax County Wetlands Board. This EA will address the impact of alternatives on wetlands and recommend mitigation measures, if necessary.

- ***Water Quality*** — The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, establishes a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters; to enhance the quality of water resources; and to prevent, control, and abate water pollution. The 1984 Chesapeake Bay Protection Act recognizes that the land immediately surrounding the Bay and its tributaries has the greatest potential to affect water quality and wildlife habitat and thus designates all lands within 1,000 feet of tidal waters or adjacent tidal wetlands as “critical areas” within the Chesapeake Bay Watershed.

The 2001 NPS Management Policies provides direction for the preservation, use, and quality of water originating, flowing through, or adjacent to Park boundaries. The NPS seeks to restore, maintain, and enhance the quality of all surface and ground waters within the parks consistent with the Clean Water Act and other applicable federal, state, and local laws and regulations. This EA will describe the water quality of streams and water bodies in the area, and will determine likely impacts of alternatives on water quality.

- ***Species of Special Concern (Rare, Threatened and Endangered Species, State and Federal)*** — The 1973 Endangered Species Act, as amended, requires an examination of impacts to all federally listed threatened or endangered species. NPS policy (Director’s Order 77) requires an examination of the impacts to state listed threatened or endangered species and federal candidate species. To determine whether threatened or endangered species exist within the study area, the Virginia Department of Game and Inland Fisheries (VDGIF) - Virginia Fish and Wildlife Information Service and the U.S. Fish and Wildlife Service (FWS) were consulted for threatened and endangered animal species and the Virginia Department of Conservation and Recreation’s Division of Natural Heritage (DCR) was consulted for threatened and endangered plant and insect species. All three agencies verified that the proposed project would not impact any threatened or endangered species. A tree survey was requested by NPS and completed by FHWA between May 6 and November 10, 2003 to identify the impacts on vegetation in the proposed improvement area. In addition, NPS surveyed plant species in the project area.
- ***Air Quality*** — The 1963 Clean Air Act, as amended (42 U.S.C. 7401 *et seq.*), requires federal land managers to protect Park air quality. The Act also assigns the federal land manager (Park Superintendent) an affirmative responsibility to protect the Park’s air quality related values — including visibility, plants, animals, soils, water quality, cultural and historic resources and objects, and visitors — from adverse air pollution impacts. Section 118 of the 1963 Clean Air Act requires the Park to meet all federal, state, and local air pollution standards. Parking demand is predicted to increase due to an anticipated increase in the length of visitor stay rather than an increase in the actual number of visitors. Since this project will not result in more vehicles in the project area, this project is not anticipated to impact air quality, and thus air quality will not be discussed in further detail in this EA.
- ***Cultural Resources*** — The National Historic Preservation Act (NHPA) of 1966; the National Environmental Policy Act (NEPA) of 1969; the 1916 Organic Act; 2001 NPS Management Policies; GWMP Resource Management Plan; as well as other NPS and Park policies provide general direction for the protection of a diverse assortment of

cultural resources, ranging from historic structures to cultural landscapes to archeological sites in the Mount Vernon area. Files and maps at the Virginia Department of Historic Resources (VDHR) were reviewed to locate the previously recorded resources, and Mount Vernon was contacted to request information regarding the potentially affected sites. In addition, an archeological survey has been completed to locate previously unidentified sites within the study area. This EA will address the impacts of alternatives on cultural resources in the study area.

- ***Scenic and Recreational Values*** — Protecting and managing Park resources for the enjoyment of future generations is the fundamental purpose of the 1916 NPS Organic Act. The scenic and recreational values in the Mount Vernon area are primarily measured by the impact of alternatives on the GWMP viewshed, the aesthetics of the area, and the effects on recreational facilities such as trails and picnic areas. This EA will address these issues.
- ***Environmental Justice*** — Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, signed February 1994, requires federal agencies to identify and address any disproportionately adverse effects on human health or the human environment of minority and/or low income populations resulting from federal programs, policies and activities. This EA includes analysis of income levels and demographics of residents within the study area.

## **1.7. Definitions**

***Temporary Impacts*** — Impacts anticipated during construction only; upon completion of the construction activities, conditions are likely to return to those that existed prior to construction

***Short-Term Impacts*** — Impacts that may extend past the construction period, but are not anticipated lasting more than a couple of years

***Long-Term Impacts*** — Impacts that may extend well past the construction period, and are anticipated to last more than a couple of years

***Negligible*** — Little or no impacts (not measurable)

***Minor*** — Changes or disruptions may occur, but do not result in a substantial resource impact

***Major*** — Easily defined and measurable, resulting in a substantial resource impact

***Impairment*** — An impact that would harm the integrity of Park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values

## 2. Alternatives Considered

Mount Vernon attracts over 1,000,000 visitors each year. Visitors enter Mount Vernon via GWMP or along one of the two legs of Route 235. These access roads join at a large traffic circle in front of the Mount Vernon entrance. A Metro bus route from the Huntington Metro station and chartered boats also serve Mount Vernon. At present, three parking lots, shown in **Figure 1-2**, serve the visitors arriving by automobile. The overflow parking is accommodated in the circle. Shuttles are also used on peak days, such as George Washington's birthday. To accommodate the parking needs of current and planned expansion of Mount Vernon, remove parking from the circle, and enhance pedestrian, motorist, and cyclist safety in the vicinity of Mount Vernon, additional improvements are necessary.

### 2.1. *Alternatives Development Process*

Based on an understanding of the Mount Vernon area and findings of earlier studies, several principles guided the definition and potential improvements. The alternatives recommended at the public meetings were also included in the analysis. A full range of alternatives were developed within the following specific goals and objectives of this project:

- Increase parking capacity for visitors
- Improve pedestrian and bike trail connectivity
- Enhance pedestrian, motorist, and cyclist safety
- Provide for extensive opportunities for public involvement
- Meet NPS Management Plan goals for the GWMP
- Make best use of resources

#### A. **Factors Considered in the Development of Alternatives**

Many of the preliminary concepts came from previous studies and/or as a result of the coordination with the citizen Stakeholders Participation Panel (SPP), federal and state agencies, and local jurisdictions. The following factors were considered in the development of the alternatives:

- Number of parking spaces needed
- Traffic operations and safety
- Environment and community concerns

### 2.2. *Preliminary Parking Concepts*

Six general preliminary parking concepts were developed, described below:

- Locate a new parking lot on NPS property between Route 235 North and GWMP
- Locate a new parking lot on Mount Vernon property between two segments of Route 235
- Reconfigure existing lots

- Expand existing East and West Parking Lots
- Provide a shuttle bus from Fort Hunt Park
- Provide off-site bus parking

Two additional concepts — extend Metro rail from Huntington Metro station to Mount Vernon, and parking demand management (PDM),— were also recommended for consideration during the public coordination process.

These general concepts were further evaluated for meeting project purpose and need. Five general conceptual locations for increasing parking capacity were identified with a total of 12 parking expansion options. The original concepts that did not meet the purpose and need of the project were eliminated from further consideration. The rationale behind their elimination is described in **Section 2.4**. The five conceptual build alternative locations with various options are listed below. **Table 2-1** describes each option in more detail, and each concept is shown with general location bubbles on **Figure 2-1**.

#### **Concept 1: New parking lot on Mount Vernon Property west of Route 235 North**

**Option 1A** – Parking lot west of Route 235. This option is entirely on Mount Vernon property, with access to Route 235.

**Option 1B** – Surface and structured parking deck west of Route 235.

**Option 1C** – Unpaved lot west of Route 235. Same as option 1A, but unpaved.

**Option 1D** – Parking lot with relocated Route 235 west of post office. Relocates Route 235 west of post office; uses existing road for access to parking lot.

**Option 1E** – Parking lot with relocated Route 235 east of post office lot.

#### **Concept 2: New parking on NPS property east of Route 235 North**

**Option 2** – Parking lot east of Route 235 North. This lot is entirely on NPS property with access to Route 235 and the existing West Parking Lot.

#### **Concept 3: New parking adjacent to the West Parking Lot**

**Option 3A** – Expand existing West Parking Lot. Combined with 1A to provide adequate number of spaces.

**Option 3B** – Expand existing West Parking Lot. Combined with 1C to provide adequate number of spaces.

#### **Concept 4: New parking adjacent to the East Parking Lot**

**Option 4A** – Build parking structure on East Parking Lot location.

**Option 4B** – Revise East Parking Lot. Combine with 1A to provide adequate number of spaces.

**Option 4C** – Revise both East and West Parking Lots. Combine with 1E to provide adequate number of spaces.

#### **Concept 5: New parking on Mount Vernon property south of Route 235 West**

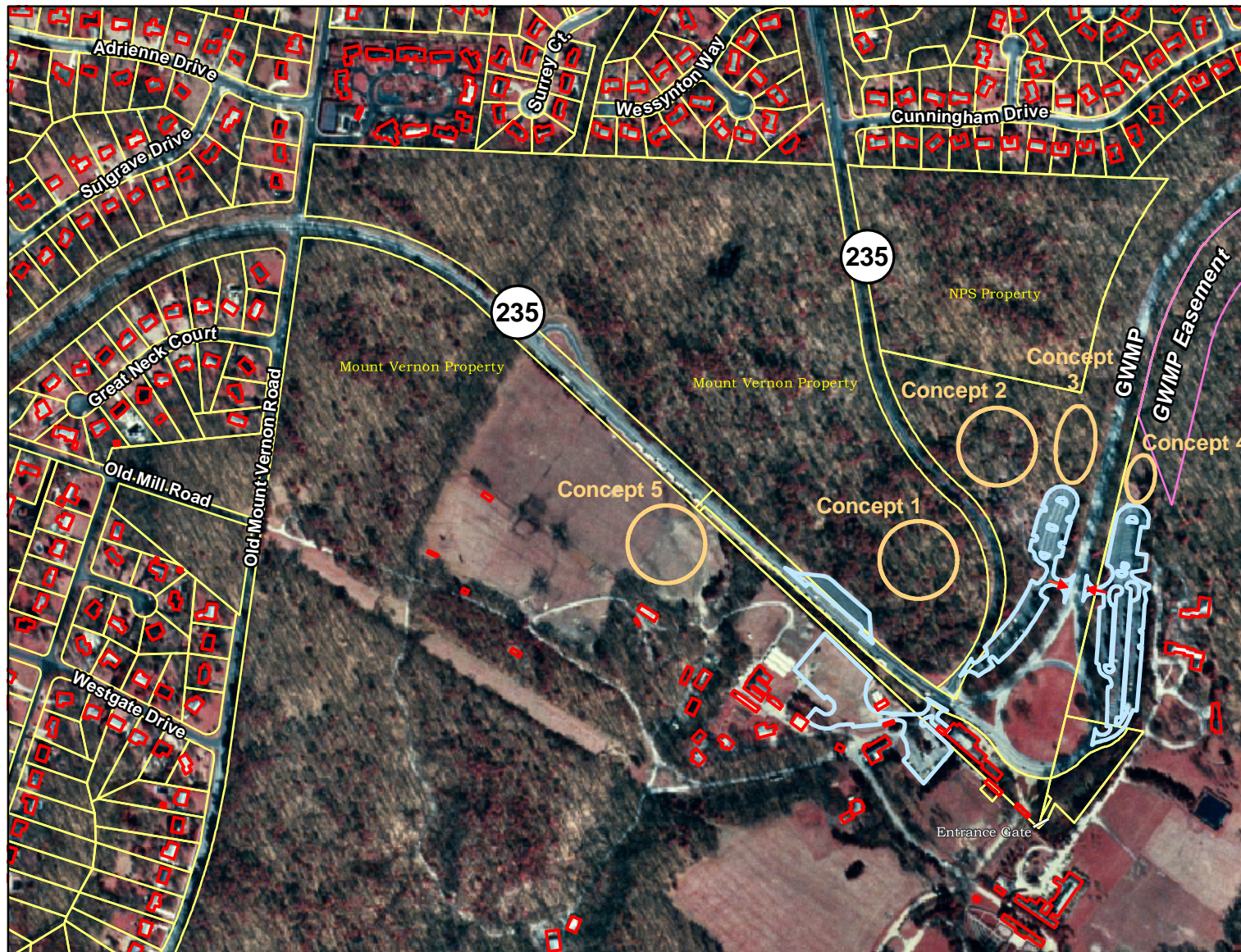
**Option 5** – Build surface lot behind wall on Mount Vernon property.

**Table 2-1: Preliminary Alternatives Analysis**

Option	Total New Spaces	Description	Advantages	Disadvantages
1A	290	Parking lot in northwest quadrant of Route 235 intersection	No impact to NPS property Access to Route 235 Moderate walking distance	Difficult access to Route 235 North Impacts Mount Vernon
1B	290	Parking deck in northwest quadrant of Route 235 intersection	No impact to NPS property Less property impacted Able to stage construction Moderate walking distance	Difficult access to Route 235 North High construction and maintenance costs Impacts Mount Vernon High visual impact
1C*	290	Unpaved lot in northwest quadrant of Route 235	No impact to NPS property Lowest cost Moderate walking distance	Difficult access to Route 235 North Unpaved lot Impacts Mount Vernon
1D	290	Parking lot in northwest quadrant of existing intersection with Route 235 North relocated west of post office	Low impact to NPS property Close walking distance Furthest from community	Requires relocating Route 235 Impacts Mount Vernon Community concerns
1E	290	Parking lot in northwest quadrant of existing intersection with Route 235 North relocated east of post office	Low impact to NPS property Close walking distance Furthest from community	Requires relocating Route 235 Impacts Mount Vernon Community concerns
2	290	Parking lot north of Route 235 west and west of West Parking Lot	Adjacent to existing parking lot Most acceptable to Mount Vernon	Impacts NPS property Closest to community Greater walking distance
3A*	290	Revise West Parking Lot and extend northward, combine with 1A modified	Compatible with existing lots Moderate walking distance	Impacts NPS property Multiple lots Impacts Mount Vernon
3B*	290	Revise West Parking Lot within existing pavement, combine with 1C	Low cost Low impact to NPS property	Has unpaved lot Impacts Mount Vernon
4A	290	East Parking Lot revision parking deck — split level	Close walking distance No need to cross road Low impact to NPS property Fewer parking lots	High visual impact Very high cost Difficult construction Maintenance and security concerns
4B*	290	East Parking Lot revised — 90-degree, two way, combine with 1A modified	Close walking distance No need to cross road Low impact to NPS property	Impacts NPS property Impacts Mount Vernon
4C*	290	Revise East and West Parking Lots, surface expansion only, combine with 1E modified	Close walking distance Improves circulation in existing East Parking Lot Uses existing parking areas Great connectivity and access with existing lots and roads Improved circulation within lots	Impacts NPS property Impacts Mount Vernon High cost Largest footprint Difficult construction Requires relocating Route 235
5	290 plus 5 bus spaces	Surface lot on Mount Vernon property behind wall	Farthest from community No impact to NPS property Low cost No need to cross road	Greatest impact to Mount Vernon Longest walking distance

\* This option includes a combination of improvements.

Note: Lots were developed to have approximately 290 spaces to meet 90% of future peak demand.



# Mount Vernon Circle Environmental Assessment

**Figure 2-1**  
**Preliminary Parking Concepts**

## Legend

- Existing Parking
- Parcels
- Buildings
- Easements
- Parking Concept

0 200 400 800 Feet



Data Sources: Fairfax County GIS Department  
United States Geological Survey

### 2.3. Screening of Preliminary Concepts

An iterative process of translating these concepts into physical improvements involved detailed data gathering of existing conditions, detailed definition, and analysis of the needs for the action. Engineering considerations included access, geometric design for proper operations, and construction and maintenance costs. Environmental considerations included potential effects on Park land, air quality, noise levels, wetlands, visual quality, and vegetation. The preliminary concepts were subjected to three level screening processes. The concepts that did not meet the project's purpose and need or could not be modified to meet the basic purpose and need of the project were eliminated from further considerations. Next, the remaining alternatives were refined and evaluated for engineering feasibility and general environmental impacts. The concepts that were assessed to be difficult to construct and maintain or had environmental impacts disproportionate to the benefits provided were dropped. Also, alternatives were evaluated at this stage to ensure that they met community acceptance. Finally, each remaining concept was judged to determine if they safely accommodated projected parking demand and trail connections, and were consistent with the management goals of NPS and the MVLA. **Table 2-2** describes the criteria for each phase.

**Table 2-2 : Criteria Used in Screening of Alternatives**

<b>Phase I Preliminary Criteria</b>	<b>Phase II Resource Impacts and Community Impacts</b>	<b>Phase III Agency Concerns</b>
Meets purpose and need	Community acceptance	Compatible with other planned improvements
Consistent with planning assumptions	Construction and maintenance costs	Consistent with agency goals
	Disproportionate environmental impacts	

### 2.4. Alternatives Considered and Eliminated

A range of alternatives were suggested to meet the project purpose and need. All alternatives that were proposed during the conceptual stage as well as those recommended later in meetings with the SPP, public, and agency representatives were considered. The following discussion summarizes the alternatives that were considered and eliminated.

#### **A. Alternatives Considered and Eliminated in Phase 1 (Does Not Meet Project Purpose and Need)**

As a result of the alternative screening and refinement, several of the original concepts were eliminated from detailed analysis. The concepts dropped from further study and rationale behind their elimination are summarized below:

**Shuttle Bus Service (Concept Recommended by SPP):** The additional cost to purchase, operate and maintain shuttle bus service along with off-site parking would be cost-prohibitive. Shuttle parking is not feasible for all 290 spaces needed, and is not convenient for visitors.

**Metro Rail Extension (Concept Recommended by SPP):** The idea of extending Metro Rail from Huntington Metro Station to Mount Vernon was suggested by an SPP member during a meeting with the SPP. The alternative would be cost-prohibitive and would not meet the projected demand by this mode alone.

**Parking Demand Management:** This alternate was recommended during the second public meeting. Parking demand management system would require visitors to purchase ticket on-line or drive to Mount Vernon, purchase tickets, and wait for the ticketed time. The system potentially discourages visitors from visiting Mount Vernon.

## **B. The Alternatives Considered and Eliminated in Phase II (Agency Concerns and Community Impacts)**

The alternatives that preliminary analyses showed had serious environmental impacts or were vehemently opposed by the community were dropped from further consideration. The alternatives dropped in this phase of analysis are shown in **Figure 2-2**, and are described below:

**Parking structures on existing East Parking Lot and on Mount Vernon Property (Options 1B and 4A):** The alternatives that involved parking structures presented higher construction and maintenance costs and security concerns. There is also a higher impact to Mount Vernon and the GWMP as historic resources due to the potential visual impact of a parking structure.

**Alternatives with realignment of Route 235 North, East and West of its existing alignment (Options 1D and 1E):** Any realignment of Route 235 was perceived as a bypass and strongly opposed by the community. A parking lot requiring the realignment of Route 235 North would most likely have a driveway into the existing Route 235 Parking Lot, which services Mount Vernon visitors and post office patrons. This would negatively impact users of the post office, and additional traffic onto Route 235 West at the existing driveway near the intersection of Route 235 North and Route 235 West would have a negative impact on traffic safety. These alternatives also have a higher cost due to the realignment of Route 235 North.

## **C. The Alternatives Considered and Eliminated in Phase III (Resource Impacts)**

The alternatives that were not consistent with the management goals of NPS or the MVLA, or were inconsistent with other planned improvements, were dropped from further consideration. The alternatives dropped in this phase of analysis are shown in **Figure 2-3**, and are described below:

**Parking expansion only on NPS property (Option 2):** Any parking expansion beyond the removal of parking provided at the circle was considered to present excessive impacts on the NPS resources and contrary to the agency's mission. A new parking lot in this location would result in a longer walk for pedestrians from the parking lot to the entrance gate than many of the other alternatives. The proposed alternative would require an additional entrance off of Route 235 North, which was opposed by the community.

**Parking expansion only on Mount Vernon property behind the wall (Option 5):** The alternative was found to be in conflict with Mount Vernon plans. A new parking lot in this location would also result in a longer walk for pedestrians from the parking lot to the entrance

gate than all of the other alternatives. In addition, traffic would be increased along Route 235 West, potentially resulting in a negative impact on traffic safety. The proposed alternative would have sight distance issues due to the existing bus parking provision along Route 235 West. Expanding all parking behind the wall would involve security and traffic management issues for Mount Vernon. The wall currently provides security and channels all visitors through the main gate or another checkpoint. With major parking expansion behind the wall, it would be difficult to maintain security and to channel those visitors to the main gate to Mount Vernon.

## Parking Structures on Existing East and West Parking Lots



## Alternatives with Realignment of Route 235 North



200 400 800 Feet

### LEGEND

- Proposed Parking
- Parking Lot Access
- Existing Parking
- Parcels
- Buildings
- Distance from Gate



Mount Vernon Circle  
Environmental Assessment

Figure 2-2  
Alternatives Considered and  
Eliminated in Phase II

Parking Expansion only on NPS Property  
(Option 2)



Parking Expansion only on Mount Vernon Property Behind the Wall  
(Option 5)



200 400 800 Feet

**LEGEND**

- Proposed Parking
- Parking Lot Access
- Existing Parking
- Parcels
- Buildings
- Distance from Gate



Mount Vernon Circle  
Environmental Assessment

Figure 2-3  
Alternatives Considered and  
Eliminated in Phase III

## **2.5. Alternatives Considered and Retained**

After the initial analysis of the preliminary concepts, the build concepts were refined to specific build alternatives. Each of the build alternatives and the No-Build Alternative are discussed in more detail.

### **A. No Action Alternative**

A No Action Alternative was developed to serve as the baseline against which all other alternatives will be compared. The No Action Alternative provides no additional parking spaces or improvements to pedestrian, motorist, or cyclist safety.

### **B. Preliminary Build Alternatives**

At the conclusion of the alternative development and screening process, the following build alternatives were retained for further evaluation:

**New Parking Lot on Mount Vernon property west of Route 235** (Options 1A and 1C): This alternative provides a single additional parking lot on Mount Vernon property west of existing Route 235 North (**Figure 2-4**). The parking lot would have access onto both Routes 235 North and West. The access from Route 235 West would be consolidated with the existing Route 235 Parking Lot. A new access point would be required from Route 235 North. The driveway from Route 235 North would have sight distance limitations due to sharp horizontal and vertical curves. The community opposes any new entrances on Route 235 North due to safety concerns and proximity to the residential neighborhoods.

**Expand East and West Parking Lots** (Option 4C): The alternative would add approximately 260 spaces to the West Parking Lot and 30 spaces to the East Parking Lot (**Figure 2-5**). Visitors would access the parking lot expansions through existing driveways. The alternative retains the existing parking and traffic patterns. The alternative remains attractive due to minimal changes in walking distance. However, this alternative has disproportionate impacts on NPS resources.

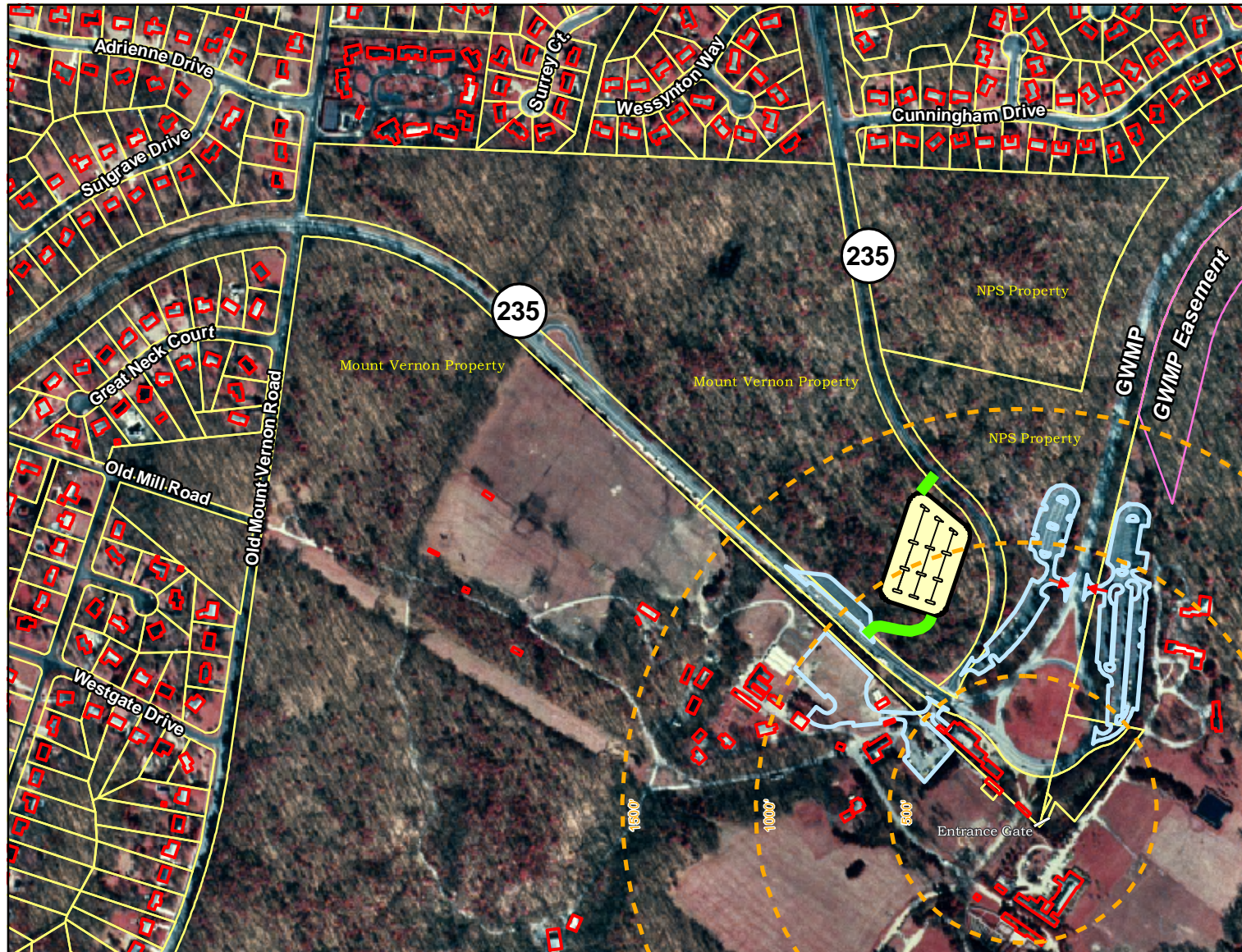
**Expand West Parking Lot and expand employee parking lot behind the wall on Mount Vernon property for overflow parking** (combination of Options 3A, 3B, and a modification of Option 5): The proposed alternative would expand the existing West Parking Lot with 150 spaces and provide an additional 140 parking spaces in the employee parking lot behind the wall (**Figure 2-6**). Visitors would access the overflow parking area through the existing employee lot. The proposed alternative would accommodate the parking currently accommodated on the circle in the expanded West Parking Lot. The overflow parking provided in the employee parking lot would be convenient to the visitors due to the proximity of this lot to the main gate. The alternative provides security challenges for Mount Vernon due to the mix of visitor and employee parking in the same lot.

**Expand West Parking Lot and construct overflow parking lot behind the wall on Mount Vernon property west of Route 235** (combination of Options 3A, 3B, and 5): This alternative would expand the West Parking Lot by 150 spaces and construct an overflow parking lot on Mount Vernon property behind the wall to accommodate 140 spaces (**Figure 2-7**). The overflow

lot would be located in the west fields of Mount Vernon Estate, with a new driveway onto Route 235 West.

### **C. Preferred Build Alternative**

The Preferred Build Alternative would provide 150 additional parking spaces in the expanded West Parking Lot and an additional 140-space overflow parking lot behind the wall on Mount Vernon property west of Route 235. The Preferred Alternative is based on the design shown in **Figure 2-7**; the final site plan is shown on **Figure 4-1** and is included as an insert after the Appendices. Although the proposed Preferred Alternative will accommodate visitors a majority of the time, remote parking with shuttle will continue to be used on the days with significantly higher visitation, such as George Washington's birthday. During the April 16, 2003 meeting between FHWA, NPS, Mount Vernon, and SPP, it was agreed that the proposed Preferred Alternative would meet the project purpose and need and addresses community concerns while minimizing the impacts on natural and cultural resources. The parking lots are proposed to be built in two phases. The West Lot expansion will be constructed first in order to alleviate parking on the circle. The overflow lot behind the wall will be constructed when necessary, determined by MVLA.



## Mount Vernon Circle Environmental Assessment

**Figure 2-4**  
**Preliminary Build Alternative**  
**New Parking Lot on Mount Vernon**  
**Property West of Route 235**  
**(Options 1A and 1C)**

### Legend

- Parking Lot Access
- Existing Parking
- Parcels
- Buildings
- Easements
- Distance from Gate
- Proposed Parking

0 200 400 800 Feet



Data Sources: Fairfax County GIS Department  
United States Geological Survey

# Mount Vernon Circle Environmental Assessment

## Figure 2-5 Preliminary Build Alternative

Expand East and West  
Parking Lots  
(Opton 4C)

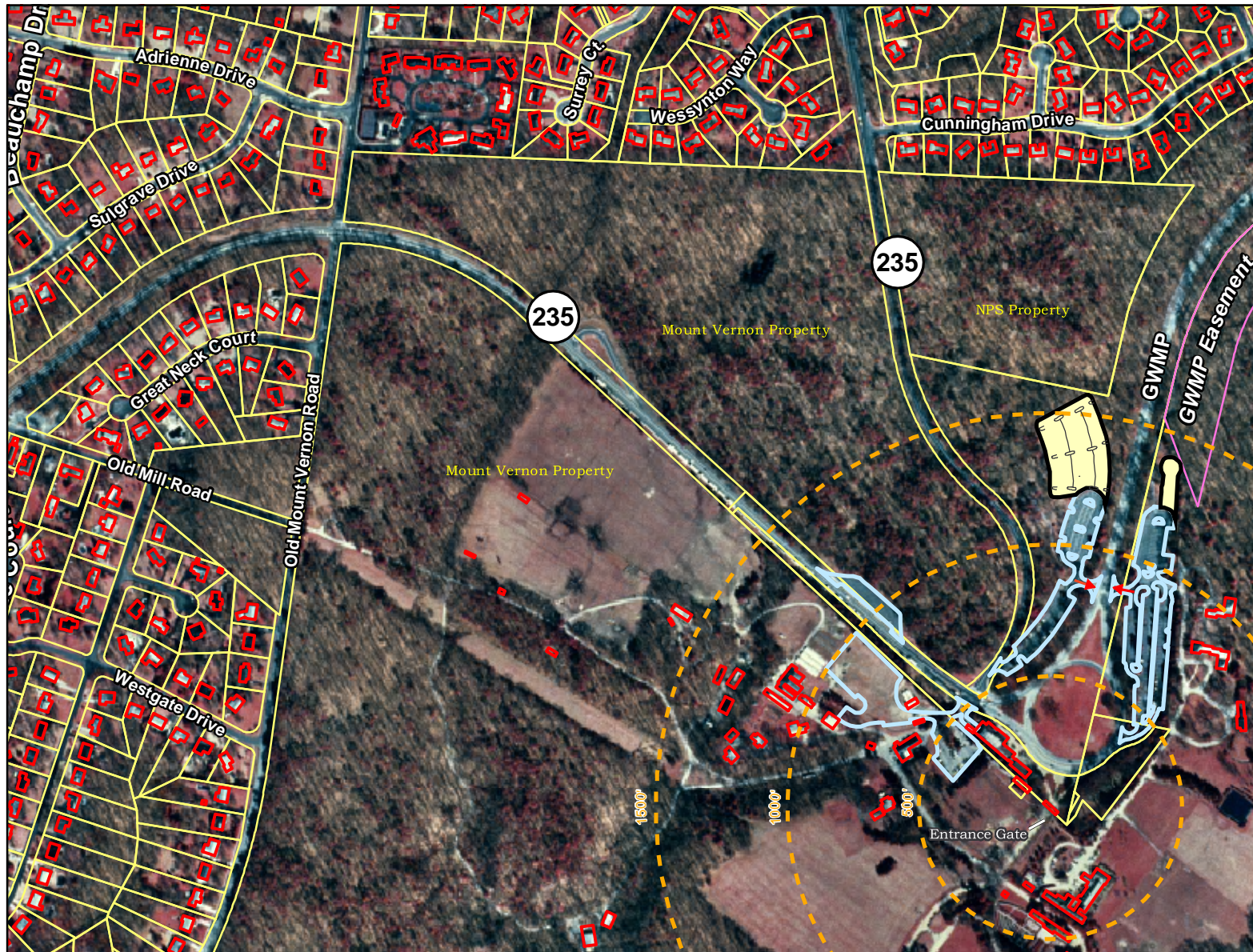
### Legend

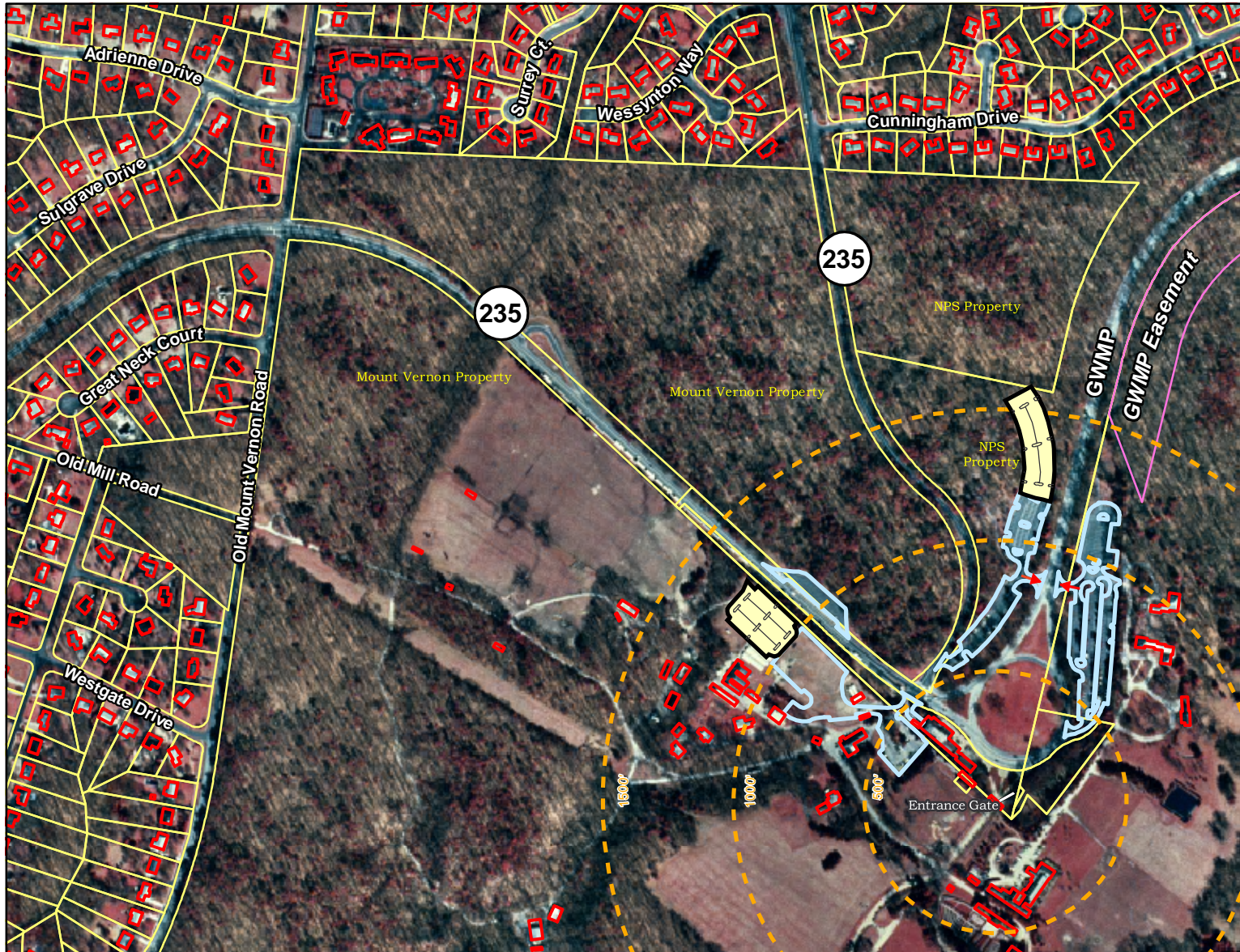
- Existing Parking
- Parcels
- Buildings
- Easements
- Distance from Gate
- Proposed Parking

0 200 400 800 Feet



Data Sources: Fairfax County GIS Department  
United States Geological Survey





## Mount Vernon Circle Environmental Assessment

**Figure 2-6  
Preliminary Build Alternative**

**Expand West Parking Lot and  
Expand Employee Parking Lot  
Behind the Wall on Mount Vernon  
Property for Overflow Parking  
(Options 3A, 3B, and 5)**

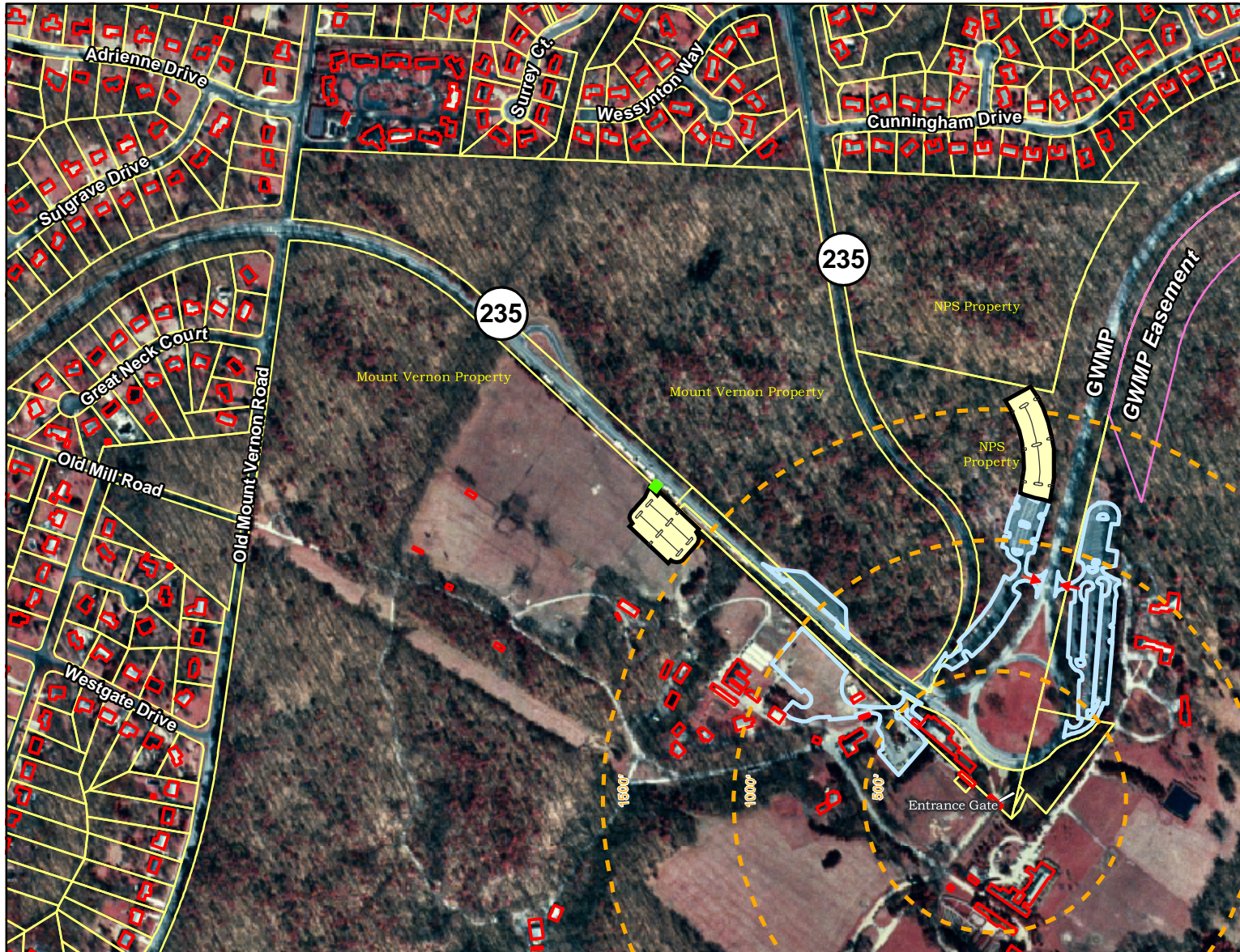
### Legend

- Parking Lot Access
- Existing Parking
- Parcels
- Buildings
- Easements
- - - Distance from Gate
- Proposed Parking

0 200 400 800 Feet



Data Sources: Fairfax County GIS Department  
United States Geological Survey



## Mount Vernon Circle Environmental Assessment

**Figure 2-7  
Preliminary Build Alternative**

**Expand West Parking Lot and  
Construct Overflow Parking Lot  
Behind the Wall on Mount Vernon  
Property West of Route 235  
(Options 3A, 3B, and 5)**

### Legend

- Parking Lot Access
- Existing Parking
- Parcels
- Buildings
- Easements
- Distance from Gate
- Proposed Parking

0 200 400 800 Feet



Data Sources: Fairfax County GIS Department  
United States Geological Survey

## **2.6. Trail Alternatives**

### **A. Alternatives Considered**

In addition to new parking, this project also includes a proposal to connect Potomac Heritage National Scenic Trail (also Interstate Route 1 Bikeway) along Mount Vernon Memorial Highway (Route 235 West) with the Mount Vernon Trail. The new trail connection begins at the north end of the East Parking Lot and joins with the existing trail on the west side of the circle. The following alternatives, shown in **Figure 2-8**, were developed and presented at the January 21, 2003 public meeting.

#### **Preliminary Alternatives:**

**Alternative A:** This alternative crosses over the GWMP north of the circle and connects with the existing Mount Vernon Trail generally west of the post office.

**Alternative B:** Alternative B extends the existing trail generally east of the East Parking Lot along the existing brick wall and joins with the existing sidewalk on the south side of the Mount Vernon Memorial Highway.

**Alternative C:** This alternative crosses the GWMP north of the circle as in Alternative A, and then carries along the north side of the West Parking Lot to connect with the existing trail at the intersection of Route 235 North and Route 235 West.

Alternatives A and C were found to have significant impacts on GWMP. The community also had many concerns with those two alternatives. Therefore, Alternatives A and C were dropped from further consideration. Alternative B was modified to develop two additional alternatives.

**Alternative B options:** Alternative B was found to be generally acceptable to the community and affected agencies. The following options of Alternative B were developed:

**Alternative B1:** This alternative runs along GWMP Parkway west of the East Parking Lot and along the inside of the circle as shown in **Figure 2-9**.

**Alternative B2:** As shown in **Figure 2-9**, the modified alternative runs along the wall and crosses over to the inside of the circle at the south end of the East Parking Lot as in Alternative B1.

**Alternative B1 Modified:** Following further evaluation of Alternative B1 for pedestrian, cyclist, and automobile conflicts, a modified Alternative B1 was developed, as shown in **Figure 2-10**. This alignment remained along the entire length of the circle. This alignment is anticipated to have minimum safety concerns and separates pedestrians and cyclists from the vehicular traffic.

### **B. Preferred Trail Alternative**

The trail alternatives were presented to the NPS, SPP, and Mount Vernon on April 16, 2003. The Alternative B1 Modified, as shown in **Figure 2-10**, was selected as the Preferred Alternative. The trail also is shown on the final site plan, included as an insert following the Appendices. The

Alternative B1 Modified provides a new bike trail beginning at the south end of the existing Mount Vernon Trail on the north end of the existing East Parking Lot, and connects with the Potomac Heritage National Scenic Trail on the north side of the Mount Vernon Memorial Highway. The trail will be paved, with a highly-textured surface along the circle to force cyclists to walk their bikes on this portion of the trail. In addition, the crosswalks across the circle and Route 235 will be textured. The signs will be installed on both ends of the circle advising cyclists to walk their bikes. The existing crosswalks would need to be rehabilitated. Additional intelligent crosswalk technologies that enhance pedestrian and bicyclist detection also may be employed at this intersection to improve pedestrian and bicyclist safety.



## Mount Vernon Circle Environmental Assessment

**Figure 2-8  
Preliminary Trail Alternatives**

### Legend

- Brick Wall
- Existing Sidewalk
- Existing Parking
- Existing Trail

### Potential Trail Options

- Alternative A
- Alternative B
- Alternative C
- Bridge
- Crosswalk

0 200 400 800 Feet



Data Sources: Fairfax County GIS Department  
United States Geological Survey

Mount Vernon Circle  
Environmental Assessment  
Figure 2-9 Refined Trail Alternatives



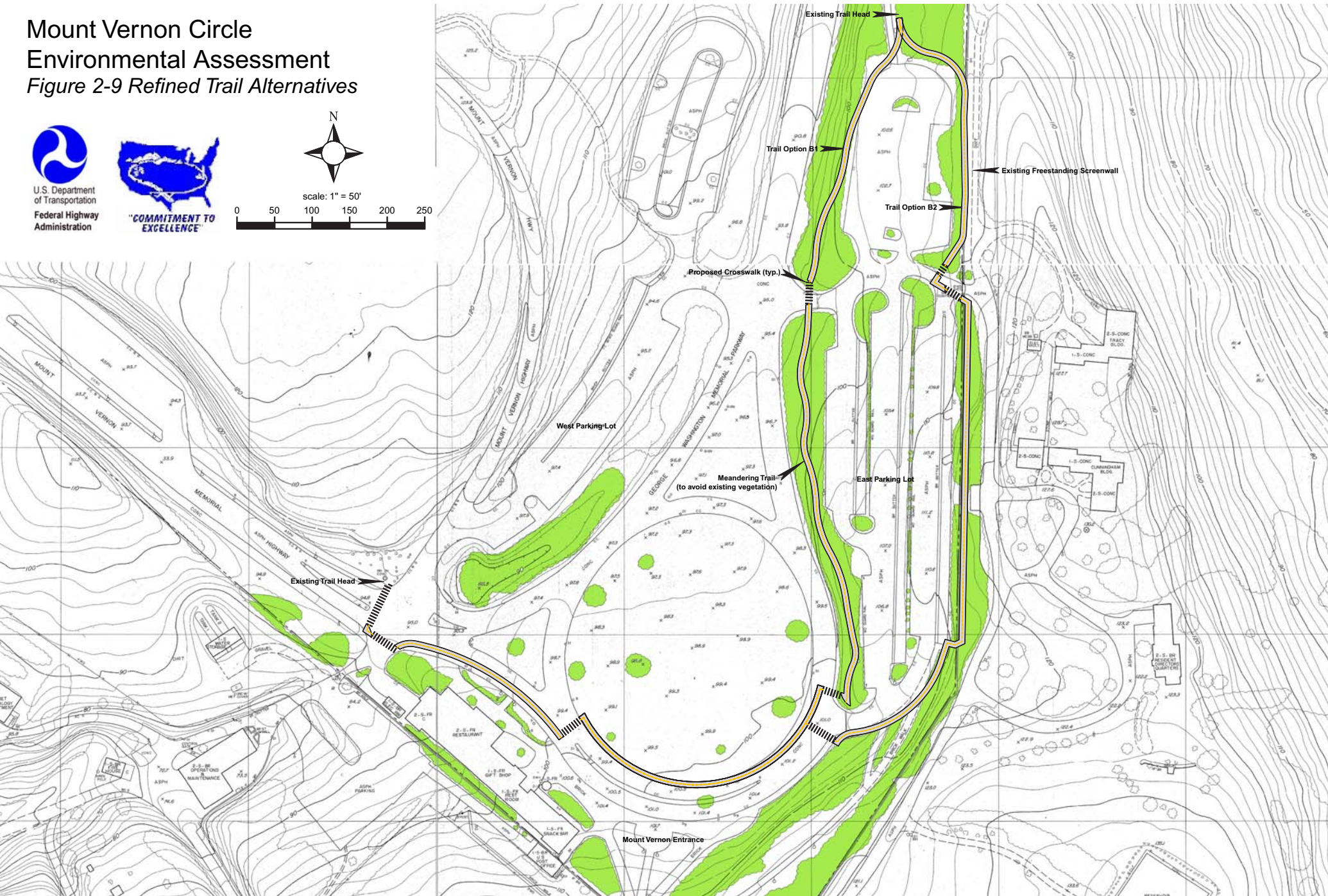
U.S. Department  
of Transportation  
Federal Highway  
Administration



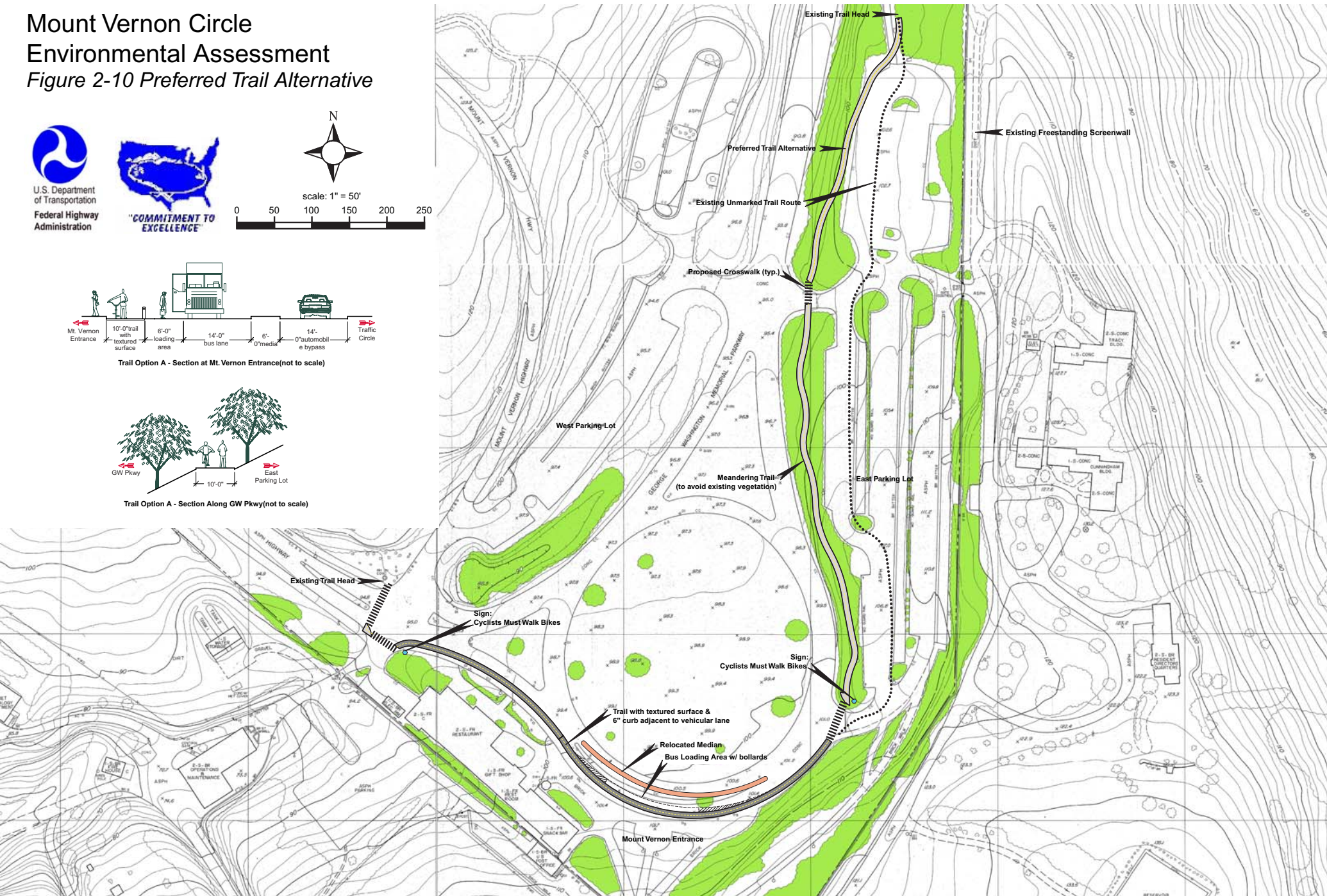
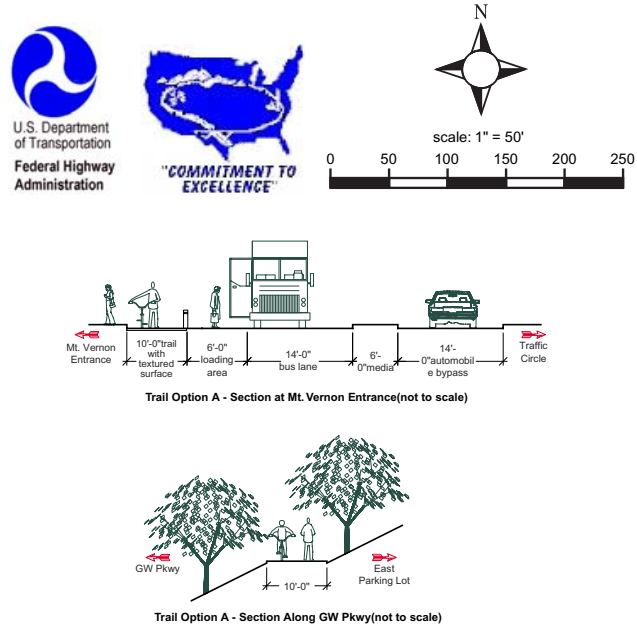
"COMMITMENT TO  
EXCELLENCE"



scale: 1" = 50'



Mount Vernon Circle  
Environmental Assessment  
Figure 2-10 Preferred Trail Alternative



## 3. Affected Environment

### 3.1. Socioeconomic Environment

#### A. Land Use and Community Facilities

Mount Vernon is described in the Mount Vernon Community Planning Sector of Area IV of the Fairfax County Comprehensive Plan. The land uses near Mount Vernon are mainly private land and public parks. The land occupied by the East and West Parking Lots is owned by the NPS, with a perpetual parking easement to Mount Vernon. The Route 235 West Parking Lot is on property owned by Mount Vernon, with a perpetual parking easement to GWMP.

Residential land uses are located in the northern and western portions of the study area. The Fairfax County Future Land Use map shows the area surrounding Mount Vernon is to remain in its current land use structure. Most of the area will be low-density residential development with private recreational uses being maintained around Mount Vernon and public park uses along southern end of the GWMP. These land uses are shown in **Figure 3-1**.

##### *A.1. Public and Government Facilities*

Two elementary schools are located within or adjacent to the study area. Woodley Hills Elementary School is located in the northwestern corner of the study area on Old Mount Vernon Road. Washington Elementary School is located southwest of the study area on Cherrytree Drive. A post office serving the Mount Vernon community is located on Route 235 West. **Figure 3-1** shows the location of the public and government facilities.

##### *A.2. Trails*

The Potomac Heritage National Scenic Trail along Route 235 West extends almost continuously from the Park at Old Mill Road to Mount Vernon, switching from the north to the south side of the road, with a trail on both sides of the road close to Mount Vernon. Along Route 235 North (Mount Vernon Highway), there are discontinuous paved trail segments from Old Mount Vernon Road to Cunningham Drive, and a soft-surface trail on the east side of the road from south of Cunningham Drive to Mount Vernon's West Parking Lot. All trails along Route 235 are owned and maintained by the NPS.

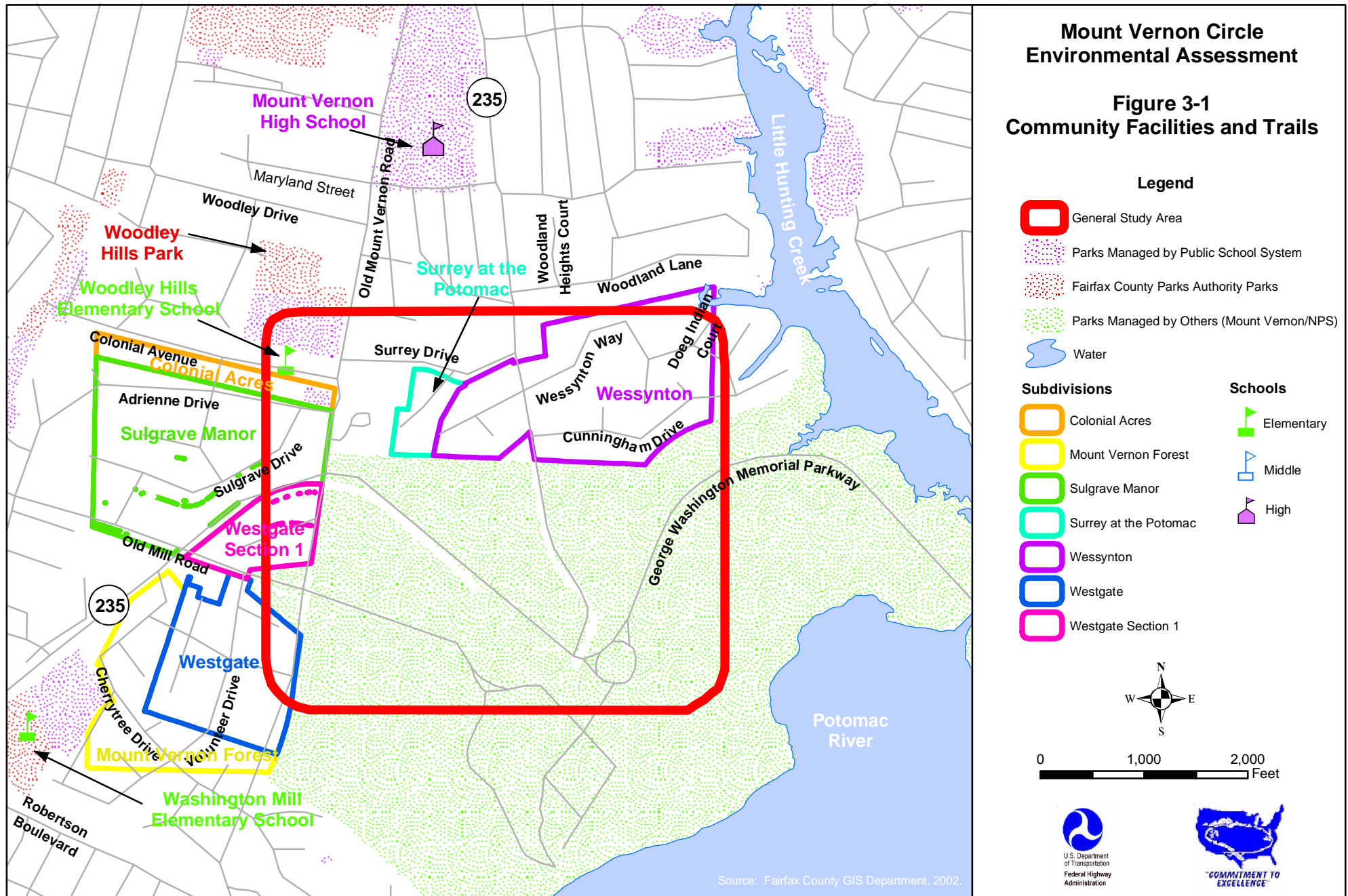
One of the longest single trails in Northern Virginia is the Mount Vernon Trail, which follows the GWMP and is maintained by the NPS. It is described in detail in **Section 3.5.B.2**.

#### B. Demographics

To determine the demographic characteristics of the Mount Vernon and surrounding areas, Census 2000 data were analyzed. **Figure A1** in Appendix A shows the location of the Census 2000 Tracts, Block Groups, and Blocks in the vicinity of Mount Vernon. **Table A1** and **Figure A2** in the Appendix show the age distribution for the Census 2000 Block Groups.

# Mount Vernon Circle Environmental Assessment

**Figure 3-1  
Community Facilities and Trails**



## C. Economics

To understand Fairfax County and the study area from an economic viewpoint, several economic factors were examined. The Mount Vernon Planning District was compared to Fairfax County as a whole, the Commonwealth of Virginia, and the United States. **Tables 3-1 and 3-2** compare the income and employment rates for the study area with the Commonwealth of Virginia and the United States.

**Table 3-1: Economic Characteristics**

Location	Median Household Income <sup>†</sup>	Per Capita Income <sup>†</sup>	Percent Below Poverty Level <sup>†</sup>
Mount Vernon Planning District	\$53,000	Not Available	5.8%
Fairfax County	\$82,036	\$36,863	5.7%
Commonwealth of Virginia	\$46,889	\$24,215	9.6%
United States	\$41,433	\$21,690	12.5%

<sup>†</sup>For Fairfax County, Commonwealth of Virginia, and the U.S., estimates from the Census 2000 Supplementary Profile were used

Sources: 2000 Fairfax-Falls Church Community Assessment, 2001

Fairfax County Department of Systems Management for Human Services, 2002

Fairfax County Economic Development Authority, 2002

U.S. Census Bureau Census Supplementary Profile, 2002

**Table 3-2: Unemployment Rates**

Area	Percent Unemployed <sup>†</sup>				
	1996	1997	1998	1999	2000
Fairfax County	2.7%	2.3%	1.6%	1.6%	1.2%
Commonwealth of Virginia	4.4%	4.0%	2.9%	2.8%	2.2%
United States	5.4%	4.9%	4.5%	4.2%	4.0%

<sup>†</sup>Not seasonally adjusted.

Source: Virginia's Electronic Labor Market Access (VELMA), Virginia Employment Commission, 2002

As shown from the tables above, on the whole, Fairfax County is an economically thriving area of Virginia.

## D. Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, directs federal agencies to consider proposed actions on minority and/or low-income populations to ensure that their actions do not have an adverse or disproportionate impact on these communities, and that the communities have the opportunity to participate in the EA process.

Minority populations are less than 20% in the study area, as seen in **Figure A3**. In the Mount Vernon planning district, 5.8% of the population was below poverty level (2000), which is slightly above that of Fairfax County (5.7%), but significantly below that of Virginia (9.6%) or the United States (12.5%) (**Table 3-1**).

## E. Aesthetics and Viewsheds

Mount Vernon is surrounded by wooded areas. The Estate and Gardens is a combination of carefully sculpted gardens, fields, and historic structures, including George Washington's mansion. The Estate and Gardens provide a scenic overlook to the Potomac River but are screened from the surrounding areas to the north by heavy vegetation and a brick wall. The *Cultural Landscape Plan for Mount Vernon Memorial Highway* includes a number of design recommendations for the Parkway for visually separating the Parkway from commercial or parking areas, found in Volume 2 (page 226) and Appendix G (page 4 paragraph 1, page 185 paragraph 4, and page 195). According to the Landscape Plan, parking areas are "inobtrusively tucked into the surrounding woods," and buildings are clustered together. Specific trees and plantings are chosen to emphasize the significance of the area, and features such as guardrails, light standards, road paving, and shrubs placed along the woodland "help reinforce the contrast between the dark canopied ascent and the light spacious entrance to the estate."

The study area surrounding Mount Vernon is wooded, with residential development occurring along the fringes of the study area. To the west, the nearest residential development is 3,085 feet (0.58 mile) from the circle. To the north, the nearest residential development is 2,230 feet (0.42 mile) from the circle. North of Little Hunting Creek there is residential development adjacent to the Parkway, which is separated by a wooded buffer. As it approaches Mount Vernon, the GWMP ends at the circle, and the Mount Vernon Trail ends in the East Parking Lot.

## 3.2. Cultural Resources

### A. Historic Architectural Resources

#### *Mount Vernon*

Originally comprising approximately 8,000 acres, Mount Vernon is undoubtedly the most well known house in the United States. George Washington inherited the plantation in 1754 after the death of his half-brother, Lawrence, and it remained his home for the rest of his life (*National Register of Nomination, Mount Vernon*, 1972). Washington converted the simple farmhouse, built by his father, into the mansion that it is today (*Virginia Landmarks Register*, 1999). Washington oversaw every aspect of the estate from the architecture of the mansion, to the decoration of the interior, to the planning of the outbuildings and the layout of the gardens.

The original plantation was divided into five different farms. Over the years after Washington's death in 1799, four of the farms were divided and subdivided, and only the Mansion House farm remains substantially intact (*National Register of Nomination, Mount Vernon*, 1972). The property fell into decline after Washington's death, and in 1858, approximately 200 acres of the original farm were acquired by the MVLA organized by Ann Pamela Cunningham (*Virginia Landmarks Register*, 1999). The Association has expanded its holdings and continues to maintain the "meticulously restored complex in its matchless Potomac River setting as a shrine to the father of our country" (*Virginia Landmarks Register*, 1999:159).

Mount Vernon is listed on the National Register of Historic Places, the Virginia Landmarks Register, and is a National Historic Landmark (*National Register of Nomination, Mount Vernon*, 1972; *Virginia Landmarks Register*, 1999). The National Register boundaries (**Figure 3-2**) include 420 acres consisting of three tracts noted on the National Register nomination as follows:

- Approximately 300 acres are located south of Mount Vernon Memorial Highway and east of Old Mount Vernon Road

- Approximately 55 acres are located north of Mount Vernon Memorial Highway and west of Route 235 North (Mount Vernon Highway)
- Approximately 45 acres are located northeast of Mount Vernon Memorial Highway, adjoining Hunting Creek
- The Department of the Interior has a scenic easement on some 10 acres of land located due north of and adjacent to the circle at the main visitor's entrance to Mount Vernon (*National Register of Nomination, Mount Vernon, 1972*)

#### *Mount Vernon Memorial Highway, Portion of George Washington Memorial Parkway*

The Mount Vernon Memorial Highway is the southern portion of the George Washington Memorial Parkway. The Parkway opened in 1932, and was the first Parkway built by the U.S. Government (*Virginia Landmarks Register, 1999*). The Parkway links the southwest end of the Arlington Memorial Bridge on Columbia Island, Washington, D.C. with Mount Vernon (*National Register Nomination Form, Mount Vernon Memorial Parkway, 1980*). The route roughly parallels the Potomac River and was designed and landscaped to “maximize scenic, esthetic, and commemorative qualities” (*National Register Nomination Form, Mount Vernon Memorial Parkway, 1980:2*). It retains much of its intended character.

The Fairfax County section, from Mount Vernon to Hunting Creek, is the least altered portion of the highway. It features distinctive stone-faced arch bridges and retains much of its original concrete slab construction. The Parkway is four lanes wide with occasional planted median dividers. A landscaped traffic circle is located at the Mount Vernon terminus. Flanking parking areas are screened with vegetation in accordance with the original design (*National Register Nomination Form, Mount Vernon Memorial Parkway, 1980*).

Planning for the highway began in 1887 with the formation of the Mount Vernon Avenue Association chartered by the Commonwealth of Virginia. Several routes were surveyed by Lt. Col. Peter Hains of the U.S. Army Corps of Engineers. Hains' report, submitted in 1890 noted that the road “. . . would not be such as built for ordinary traffic. It should have the character of a monumental structure, such as would comport with the dignity of this great nation in such an undertaking, and the grandeur of character of the man to whom it is dedicated. . . . The grades should be light, the alignment in graceful curves, and it should pass over some of the high grounds from which the beautiful scenery along the route could be enjoyed.” (*National Register Nomination Form, Mount Vernon Memorial Parkway, 1980:3*)

The Mount Vernon Memorial Highway is listed on the National Register of Historic Places and the Virginia Landmarks Register (*Virginia Landmarks Register, 1999*). The boundary of the Parkway within the study area is shown on **Figure 3-2**.

#### *Study Area Architecture*

A survey was completed by Coastal Carolina Research, Inc. in October 2003 to identify any architectural sites within the study area that are on, or potentially eligible for, the National Register of Historic Places and to assess the potential effects of the project on historic resources. With the exception of the two National Register listed resources — i.e., Mount Vernon and the Mount Vernon Memorial Highway — there are no additional previously recorded architectural resources within the study area. A review of the residential areas on the north and west sides of Mount Vernon reveals that the area is built up with suburbs dating no earlier than the 1970s. In addition to the older established suburbs, newer and larger homes are being built on smaller in-fill tracts.




Only one resource within the study area appeared to predate 1952, the conventional cutoff for recording historic resources. This house at 3408 Wessynton Way appears from a distance to be an early 20th century house. However, it is several blocks over from the Mount Vernon boundary, and there are intervening houses that would screen it from any roadway or parking lot improvements. It is doubtful that there would be an effect on this resource.



## Mount Vernon Circle Environmental Assessment

**Figure 3-2  
Historic Resources**

### Legend

-  General Study Area
-  George Washington Memorial Parkway
-  Mount Vernon Boundary



0 500 1,000 2,000  
Feet



Source: USGS, 2002

## **B. Archaeological Resources**

A review of the site files at the Virginia Department of Historic Resources (VDHR) indicates that a number of archaeological sites have been recorded within the study area. The majority of these are recorded within the National Register boundaries of Mount Vernon. There are 15 prehistoric sites, three historic sites, and ten prehistoric/historic multicomponent sites. A survey was completed by Coastal Carolina Research, Inc. in October 2003 to identify any archaeological sites that are on, or potentially eligible for, the National Register of Historic Places and to assess the potential effects of the project on historic resources.

The 18th century sites are associated with Washington's residency at Mount Vernon, and would be contributing resources to the Mount Vernon National Register Historic District. According to NPS Director's Order 28 Cultural Resource Management Guideline, "With respect to archaeological resources, at the earliest possible stage of planning it must be determined (1) whether and at what level the proposed project area has been surveyed archaeologically, (2) whether archaeological resources eligible for the National Register have been identified in the area, and (3) whether such resources will be affected by the proposed project."

Archaeological resources are identified through two primary stages. Phase I Archaeology typically consists of background research, surface reconnaissance, and subsurface testing (shovel tests) to locate and identify previously unknown sites within the study area. Phase II Archaeology further identifies and evaluates the sites discovered by Phase I Archaeology to determine their significance for possible nomination to the National Register. Identification of previously unknown archaeological sites prior to generating preferred alternatives that may affect lands that have not been archaeologically surveyed is recommended by the NPS. Shovel tests were completed in October 2003 by Coastal Carolina Research, Inc. for the two proposed parking areas and the proposed trail area.

The Area of Potential Effect (APE) for the archaeological identification survey included the area north of the West Lot, the area behind the wall west of Mount Vernon, and the area between the GWMP and the East Lot. No previously recorded archaeological sites are located in the APE. One artifact location, 02-13-1, was recorded in the area north of the West Lot during the 2003 survey, which does not appear eligible for the NRHP. One artifact location, 02-13-2, was recorded in the area between the GWMP and the East Lot during the 2003 survey, which does not appear eligible for the NRHP. Surface inspection of the area north of the West Lot indicates that the traces of a historic road may be present. This appears to run east-west alongside the drainage to the north of the West Lot. Although it is not located within the current APE for archaeology and was not investigated for the purposes of this study, it is noted so that it may be taken into consideration in future projects.

## **3.3. Biological Resources**

### **A. Vegetation**

The vegetation in the study area consists of deciduous forest, lawn, and ornamental plantings. The deciduous forest surrounds the GWMP and also exists north of Mount Vernon. Patches of deciduous forest also occur in the western and southwestern portions of the study area. In surveys conducted in May and August 2000 by the NPS, the Mount Vernon-Little Hunting Creek area of the GWMP was inventoried for botanical resources. The portion of the surveyed area that is

contained within the project study area includes the south side of the Parkway along the bike path and the western portion of the north side of the Parkway. The following documents the results of the survey:

“On the south side of the parkway, several large specimens of Tuliptree (*Liriodendron tulipifera*) attest to forest maturity, but many invasive species, such as Japanese honeysuckle (*Lonicera japonica*) and Bittersweet (*Celastrus orbiculatus*), occur along the bike path. Two uncommon species occur along the bike trail in this area: a small colony of an orchid, Pink lady’s slipper (*Cypripedium acaule*) and a large single specimen of Shortleaf pine (*Pinus echinata*).”

A tree survey for the project study area was requested by NPS and completed by FHWA between May 6 and November 10, 2003 (hereafter referred to as the survey area). A complete list of trees located in the survey is identified in Appendix B. Trees with a diameter greater than 6 inches were identified and located using the Global Positioning System (GPS). A total of 463 trees were identified within the survey area, ranging from 6 inches to 40 inches in diameter. Seventy-six percent (355) of the trees identified were oaks, ten percent were holly trees, and the remainder (64) included pine and others. Sixty-four percent of the trees are 12 inches or less in diameter, 27 percent are between 12 and 24 inches wide, and the remaining 6 percent are greater than 24 inches in diameter. Of the 42 trees in the largest category (24 to 36 inches), 31 are in the vicinity of the West Lot expansion and 11 are in the area along the trail extension corridor. GWMP staff identified a number of additional tree species on the site which reached maturity under six inches and would not have been identified in the tree survey. Flowering dogwoods, Black haw, arrowwood, viburnum, and Hercules club are also present on the site.

There are approximately 180 acres of undisturbed forested vegetation within the study area. The forested area around the East and West Parking Lots that is owned by the NPS has been forested since at least 1937 when it became the property of the NPS. Lawn and ornamental plantings occur within Mount Vernon. There are no trees larger than 6 inches in the vicinity of the proposed overflow lot.

## **B. Wildlife**

Wildlife that is within the study area is limited to species associated with urban environments as well as those associated with wooded environments. Forested area surrounding Mount Vernon meets the habitat criteria for forest interior dwelling bird species. Since forest fragmentation is considered a contributing factor to habitat loss for these species, the proposed build alternatives will be designed to minimize the amount of forest interior lost or impacted as a result of proposed development while meeting the project purpose and need. A complete list of animal species that are known to occur in Fairfax County is available from the Virginia Department of Game and Inland Fisheries, Virginia Fish and Wildlife Information Service. A list of species within a 3-mile radius of the project is in Appendix F.

## **C. Threatened and Endangered Species**

To determine the potential for threatened or endangered species to exist within the study area, the Virginia Department of Game and Inland Fisheries (VDGIF), Virginia Fish and Wildlife Information Service and the U.S. Fish and Wildlife Service (FWS) were consulted for threatened and endangered animal species. The Virginia Department of Conservation and Recreation’s Division of Natural Heritage (DCR) was consulted for threatened and endangered plant and insect species. **Table 3-3** lists the threatened and endangered animal species found within Fairfax

County that are listed by federal and state agencies. This inventory was obtained from a search with the VDGIF consisting of a 3-mile radius of the study area; the complete list is available in Appendix F. Based on a letter received from the VDGIF dated June 24, 2002 (Appendix C), only the federal and state threatened bald eagle (*Haliaeetus leucocephalus*) has been documented in the project area. According a letter received by the FWS (Appendix C), “it appears that this project is not likely to adversely affect any federally listed or proposed species or their designated critical habitat.”

The DCR search was site-specific to the study area, and searched for natural heritage resources in the project area. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations. From a letter received from the DCR dated June 7, 2002 (Appendix C), the presence of natural heritage resources was documented, but “due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.” In addition, the letter stated that “the current activity will not affect any documented state-listed plants or insects,” and that their files “do not indicate the presence of any State Natural Area Preserves under DCR’s jurisdiction in the project vicinity.”

**Table 3-3: Threatened and Endangered Animal Species Within Fairfax County**

Common Name	Scientific Name	Federal Status <sup>1</sup>	State Status <sup>2</sup>	Confirmed
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FT	ST	Yes
Brook Floater Mussel	<i>Alasmidonta varicosa</i>	FS	SE	No
Henslow’s Sparrow	<i>Ammodramus henslowii susurrans</i>	FS	ST	No
Atlantic Sturgeon	<i>Acipenser oxyrinchus</i>	FS	SS	No
Yellow Lampmussel	<i>Lampsilis cariosa</i>	FS	SS	No
Yellow Lance	<i>Elliptio lanceolata</i>	FS	SS	No

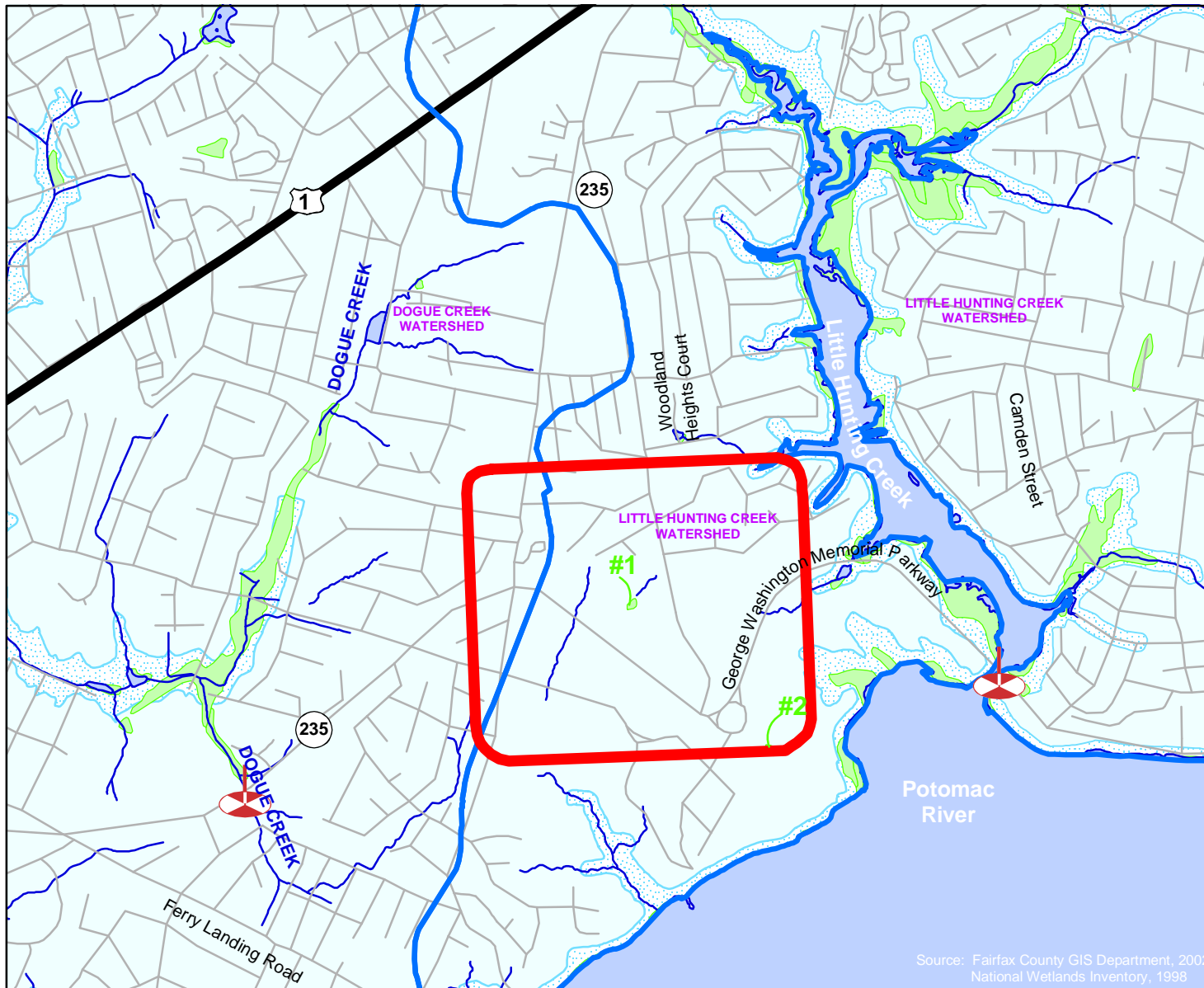
<sup>1</sup>Federal Status: FE=Federal Endangered, FT=Federal Threatened, FS=Federal Species of Concern

<sup>2</sup>State Status: SE=State Endangered, ST=State Threatened, SS=State Special Concern

Source: The Virginia Fish and Wildlife Information Service, <http://www.dgif.state.va.us/wildlife/index.cfm>, 2002.  
Virginia Department of Conservation and Recreation, Division of Natural Heritage, 2001

## D. Wetlands






To determine if potential wetlands exist within the study area, National Wetland Inventory (NWI) mapping was reviewed for the Mount Vernon United States Geological Survey (USGS) quad. The study area contains two pockets of potential wetlands (identified in **Figure 3-3**). The first potential wetland is located in the middle of the study area. This potential wetland (designated as #1 on the figure) is a palustrine wetland that has an unconsolidated bottom. It has been altered for farming, and has an area of 0.29-acre (12,449 ft<sup>2</sup>). The second wetland (designated as #2 on the figure) is located in the southeastern corner of the study area on the grounds of Mount Vernon. It also is a palustrine wetland with an unconsolidated bottom. However, this wetland is permanently flooded and is diked and impounded. The area of this wetland is 0.37 acre (16,239 ft<sup>2</sup>). Other wetlands are located along the banks of Little Hunting Creek and Dogue Creek. These wetlands were identified by the NWI mapping only. Email correspondence with the Fairfax County Wetlands Board verified that there are no large streams in the study area, and that there is one small tributary which traverses east/west located by the GWMP. Fairfax County also indicated that other small wet areas may exist on site that do not show up on the map, and which can only be verified by a field check.



# Mount Vernon Circle Environmental Assessment

Figure 3-3  
Water Resources

## Legend

-  Water Quality Monitoring Sites
-  General Study Area
-  Watershed
-  Wetlands
-  Resource Protection Area
-  Resource Management Area
-  Water
-  Major Roads
-  Streets
-  Streams



0 2,000 4,000  
Feet



Source: Fairfax County GIS Department, 2002  
National Wetlands Inventory, 1998

A survey of the Mount Vernon-Little Hunting Creek area of GWMP by the NPS (NPS, 2000 and 2001) also revealed that a “small but high quality forested swamp occurs in a low area across the road from the tidal gut.” This area would need to be studied prior to construction to determine the exact location and possible impact of the project.

### **3.4. Physical Environment**

#### **A. Air Quality**

Mount Vernon is located approximately 170 miles from the Atlantic Ocean. Good air dispersion parameters occur in the region, with typical wind speeds of 5 to 15 miles per hour (mph) predominantly from a general northerly and southerly direction. Overall air quality can be considered fair, but problems with specific pollutants exist in the area. The metropolitan Washington, D.C. region exceeds the National Ambient Air Quality Standards (NAAQS) for ozone and has been designated a Serious Non-Attainment Area for ozone by the U.S. Environmental Protection Agency (EPA). The region is in compliance for all other pollutants considered in the NAAQS.

The EPA approved the National Capital Region State Implementation Plan (SIP) on December 15, 2000. The EPA also approved the region’s request to extend the ozone attainment date to November 15, 2005.

#### **B. Water Resources and Quality**

The study area is adjacent to two streams, as shown in **Figure 3-3**. Dogue Creek is located west of the study area and Little Hunting Creek is located east of the study area. Both streams flow into the Potomac River. The study area is located within both the Dogue Creek watershed and the Little Hunting Creek watershed. These watersheds drain into the Lower Potomac River subbasin. This subbasin drains into the Potomac and Shenandoah River Basin, which in turn drains into the Chesapeake Bay.

To determine the water quality status of the streams within the vicinity of Mount Vernon, both the Environmental Protection Agency (EPA) and the Virginia Department of Environmental Quality were consulted. The Commonwealth of Virginia has kept water quality sample records for both Dogue Creek and Little Hunting Creek. **Figure 3-3** shows the location of these sampling points. Dogue Creek was last sampled in 1989, and Little Hunting Creek was last sampled in 2001. Neither Dogue Creek nor Little Hunting Creek is on EPA’s Section 303(d) list of impaired waters. There are no national or state designated wild and scenic rivers in the vicinity of Mount Vernon.

The existing condition of the land proposed for the expansion of the West Parking Lot area is that of generally 5% to 10% slopes with medium-dense tree coverage and moderate understory coverage. In general, the land area crests to the west of the site and the drainage across the site is from west to east. The runoff collects in a shallow roadside ditch adjacent to GWMP. The ditch flows into a pipe crossing beneath GWMP. The slope of the cross pipe is unknown. The flow continues to the northeast, eventually into a series of lowland areas that drain into the Little Hunting Creek.

The existing condition of the land proposed for the overflow lot is that of generally 2% to 5% slopes with maintained grass coverage. In general, the land area crests to the northwest of the site

and the drainage falls away from Route 235 and toward the south of the site. The runoff collects in a heavily wooded ravine that also conveys drainage from the northern portion of the Mount Vernon property. The drainage entering the ravine empties into a series of underground drainage pipes. There is little known information regarding the underground pipes to the south of the Mount Vernon compound. The flow continues to the south, eventually emerges to the surface, and enters into a series of lowland areas that drain into the Little Hunting Creek.

### *Coastal Zone Management*

The Virginia Coastal Resources Management Program was established in 1986 to protect and manage an area known as Virginia's "Coastal Zone." This zone encompasses 29 counties (including Fairfax County), 15 cities, and 43 towns in Tidewater Virginia and all of the waters therein and out to the 3-mile Territorial Sea boundary. The Coastal Zone includes all of Virginia's Atlantic coast watershed as well as parts of the Chesapeake Bay and Albemarle-Pamlico Sound watersheds. The study area is contained in the Potomac River basin of the Chesapeake Bay watershed. The tidal portion of the river extends from the mouth of the Chesapeake Bay to Chain Bridge in Washington, D.C. As such, the general study area is within the Virginia Coastal Zone.

### *Chesapeake Bay Preservation Area*

Fairfax County is responsible for delineating the Chesapeake Bay Preservation Act areas (CBPAs) and adopting programs that implement the performance specified in the language of the Chesapeake Bay Preservation Act. The NPS is a member of the Chesapeake Bay Program which also helps implement the act. The CBPAs are divided into two designations by the Commonwealth of Virginia's regulations. These areas are resource protection areas (RPAs) and resource management areas (RMAs).

An RPA includes extremely sensitive areas such as major streams, rivers, lakes, and wetlands as well as a 100-foot buffer that surrounds these areas. Within the study area, RPAs generally follow the 100-year floodplain. They are located in the extreme eastern and northeastern part of the study area (see **Figure 3-3**) where tributaries from Little Hunting Creek extend inland. An RMA consists of lands that are less sensitive to land use impacts but which still can result in a significant contribution to the Chesapeake Bay pollution problem if not properly used. In Fairfax County, all areas that are not designated as RPAs are designated as RMAs. The majority of the study area is an RMA. There are no restrictions to building parking lots or paved trails in an RMA.

## **C. Floodplains and Floodways**

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) were reviewed to determine if the study area was within the 100-year floodplain. FIRM Panels # 5155250136D, Fairfax County, Virginia, and #5155250138D, Fairfax County, Virginia show that only a very small portion of the 100-year floodplain exists at the edge of the study area along Doeg Indian Court, which is at the edge of Little Hunting Creek. The base flood elevation is approximately 9 feet above mean sea level (MSL).

## **D. Physiography, Geology, and Soils**

The study area is located in the Atlantic Coastal Plain physiographic province. This province occupies approximately 26 percent of Fairfax County. Most of the Atlantic Coastal Plain is east of the Interstate 95 (Shirley Memorial Highway). The overall drainage is to the southeast. Drainage patterns are well developed in the western portion of the province. Broad and nearly level areas are found in the central and southern portions of the province. Many of the Coastal

Plain soils have moderately slow to slow permeability. Drainage restrictions create shallow seasonal high water tables in large area. High shrink-swell clays are often exposed in areas mapped as “marine clay.”

With the exception of the Mason Neck/Gunston area, the Coastal Plain was not included in the 1963 Soil Survey of Fairfax County. Fairfax County mapped additional areas. **Table 3-4** includes a description of each soil series or type.

**Table 3-4: Soil Series or Type Descriptions**

Soil Series or Type	Soil Description
Mattapex	Occurs on uplands in sand, silt, and clay sediments of the lower Coastal Plain.
Colfax	Derived from granite, gneiss, and alluvium. Occurs in drainage ways, footslopes, and uplands.
Othello	Silty and clayey. Occurs on nearly level landscapes in the Coastal Plains.
Hyattsville	Occurs in drainageways and toe slopes. Derived from Coastal Plain sediments eroded from slopes. Soil materials include clay, silt, sand, and gravel.
Beltsville	Gravelly and silty soil. Occurs on hilltops in the Coastal Plain and on old Coastal Plain terraces over weather schists and granites.
Appling	Derived from granite and gneiss. Occurs on hilltops and side slopes.
Loamy and Gravelly Sediments	Located primarily on steep hillsides in the Coastal Plains.
Silty and Clayey Sediments	Occurs primarily along steep hillsides and adjacent drainage ways in the Coastal Plain.

Note: Most of the Mount Vernon District of Fairfax County has not been mapped for soils

Source: Fairfax County Public Works and Environmental Services, 2002

## **E. Parkland — Section 4(f) and 6(f) Resources**

Section 4(f) – The Department of Transportation Act of 1966, 49 U.S.C. 303 protects resources including significant historic sites and publicly owned public parks, recreational areas, and wildlife or waterfowl refuges. The act provides that a transportation program or project requiring the use of publicly owned land or a public park, recreation area, or wildlife and waterfowl refuge, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, recreation area, refuge, or site) may be approved only if:

- (1) There is no prudent and feasible alternative to using that land; and
- (2) The program or programs includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

The affected area qualifies under Section 4(f) as a publicly owned park and a historic site. The trail portion of the project is not a Section 4(f) use of Park property since the trail is a Park use. The additional parking is anticipated to enhance GWMP by removing parking from the circle. Therefore, Section 4(f) analysis is not required this project.

Section 6(f) – The Land and Water Conservation Fund Act (Section 6(f)), 16 U.S.C. 460-4 TO-11, (P.L. 88-578) was enacted to “preserve, develop, and assure the quality and quantity of

outdoor recreation resources for present and future generations” (FHWA Summary of Environmental Legislation). It applies to all projects impacting recreational lands that were purchased or improved with land and water conservation funds. There are no Section 6(f) resources in the study area.

## F. Noise

The most common sources of noise or unwanted sound within the vicinity of Mount Vernon is vehicular or highway noise and aircraft noise from take-offs and landings at the nearby Ronald Reagan Washington National Airport. To assess whether highway noise levels are compatible with various land uses, the FHWA has developed noise abatement criteria and procedures to be used in the planning and design of highways. These abatement criteria and procedures are in accordance with the Title 23 Code of Federal Regulations (CFR), part 772, U.S. Department of Transportation, FHWA, Procedures for Abatement of Highway Traffic Noise and Construction Noise. A summary of the FHWA noise abatement criteria for various land uses is presented in **Table 3-5**.

**Table 3-5: Noise Abatement Criteria**

Category	$L_{eq}$ (dBA)*	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above
D	—	Undeveloped lands
E	52 (Interior)	Residence, motels, hotels, public-meeting rooms, schools, churches, libraries, hospitals, and auditoriums

\* Hourly A-weighted sound level

Source: 23 CFR 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*

Field noise measurements were taken at four locations in the Mount Vernon area using a Norsonic 116 Type I Precision Integrating Sound Level Meter to determine existing ambient noise levels at locations within the project study area. To reflect the typical height of the human ear, the microphone was located at an elevation approximately five feet above the ground. The duration of each measurement was 30 minutes and taken during the AM peak hour of traffic on the adjacent roadways. **Figure A4** in Appendix A shows the noise monitoring locations with the measured ambient noise levels summarized in **Table 3-6**, below.

**Table 3-6 Existing Ambient Noise Levels**

Site	Location	Existing $L_{eq}$ (dBA)
1	End of Surrey Court	57.5
2	Cunningham Drive	52.5
3	In woods 100' east of VA 235, north of the circle	52.2
4	Field south of VA 235 west of the circle	55.2

The Mount Vernon study area consists primarily of residential development and parklands which are classified as Category B receivers, which have an FHWA NAC of 67 dBA. As is shown in the

above table, each of the monitored areas currently experience noise levels that do not approach or exceed the NAC for category B land uses, thus no noise impacts are currently experienced.

## **G. Hazardous Materials and Waste**

To determine where hazardous materials exist within the vicinity of Mount Vernon, Environmental Data Resources, Inc. was utilized to review both federal and state hazardous materials databases. A more detailed discussion of the results of this database review is in Appendix A. **Figure A5** in Appendix A shows the location of hazardous materials sites within the vicinity of Mount Vernon.

Potential hazardous material and waste sites may be categorized under a number of different systems, which are described in the Appendix. No hazardous materials and waste sites were located within the project study area. Specifically, the study area does not contain any Resource Conservation and Recovery Act (RCRA) sites, Emergency Response Notification System (ERNS) sites, or any Facility Index System (FINDS) sites. The study area also does not contain any Leaking Underground Storage Tanks (LUSTs), Underground Storage Tanks (USTs), Voluntary Remediation Program (VRP) sites, or Leaking Tanks Database (LTANKS).

## **H. Energy**

Energy requirements associated with the study area relate to the amount of energy that is required to operate and maintain buildings and other permanent facilities. These include any outbuildings at Mount Vernon, the operation of maintenance vehicles and equipment (grounds maintenance equipment), and the operation of NPS equipment. Energy also is required for the operation of motor vehicles traversing the study area.

Energy sources utilized include electricity and petroleum products (heating oils and fuels). The operations related to the study area are dependent upon the continued availability of the existing energy sources.

## **3.5. Mount Vernon Visitation, Traffic and Parking**

### **A. Mount Vernon Visitation**

To determine whether visitation at George Washington's Mount Vernon Estate and Gardens has increased over a period of years, data provided by the MVLA from 1994 to 2001 were reviewed. The number of visitors between 1994 and 2001 varied from approximately 952,446 visitors in 1994 to 1,124,116 visitors in 1999. The average amount of visitors for the years 1994 through 2001 was 1,030,943 while the median amount of visitors was 1,038,551. As shown in **Figure A6** in Appendix A, the visitation trend at Mount Vernon rose between 1994 and 1999, when it peaked. From 1999 to 2001, visitation declined slightly.

To determine the time of year in which visitation peaks, data from 2001 were analyzed. **Figure A7** in Appendix A shows the bar chart of the results of this analysis. Visitation was at its lowest in January of 2001; it then peaked in April, and then it declined until October, where a lower peak occurred. Visitation then declined through the end of the year. Most likely, some decline from September through December may be attributed to the events of September 11, 2001.

Visitation data also were analyzed to determine the type of visitors that tour Mount Vernon. The MVLA classifies visitors entering Mount Vernon into nine general categories. They are as follows:

- Adults
- Senior citizens
- Children
- Students and chaperones
- Evening events
- After-hours admissions
- Special rates
- Annual passes
- Free admission

The visitation data from 2001 were divided into these nine categories. The percentages were placed in a pie chart for easy analysis (see **Figure A8** in Appendix A). Adults made up the majority of visitors (45.1 percent or 469,439 visitors in 2001). Students and their chaperones composed the second largest group of visitors (29.5 percent or 306,611 visitors in 2001). Free admissions, children, and senior citizens were the next most frequent types of visitors, but represented a relatively small percentage of the total visitors as compared to adults and students. The number of students visiting Mount Vernon contributed to the peak of visitation in April. Data by type of visitor also were reviewed for 1994 through 2000. The composition of Mount Vernon visitors varies only slightly between those years.

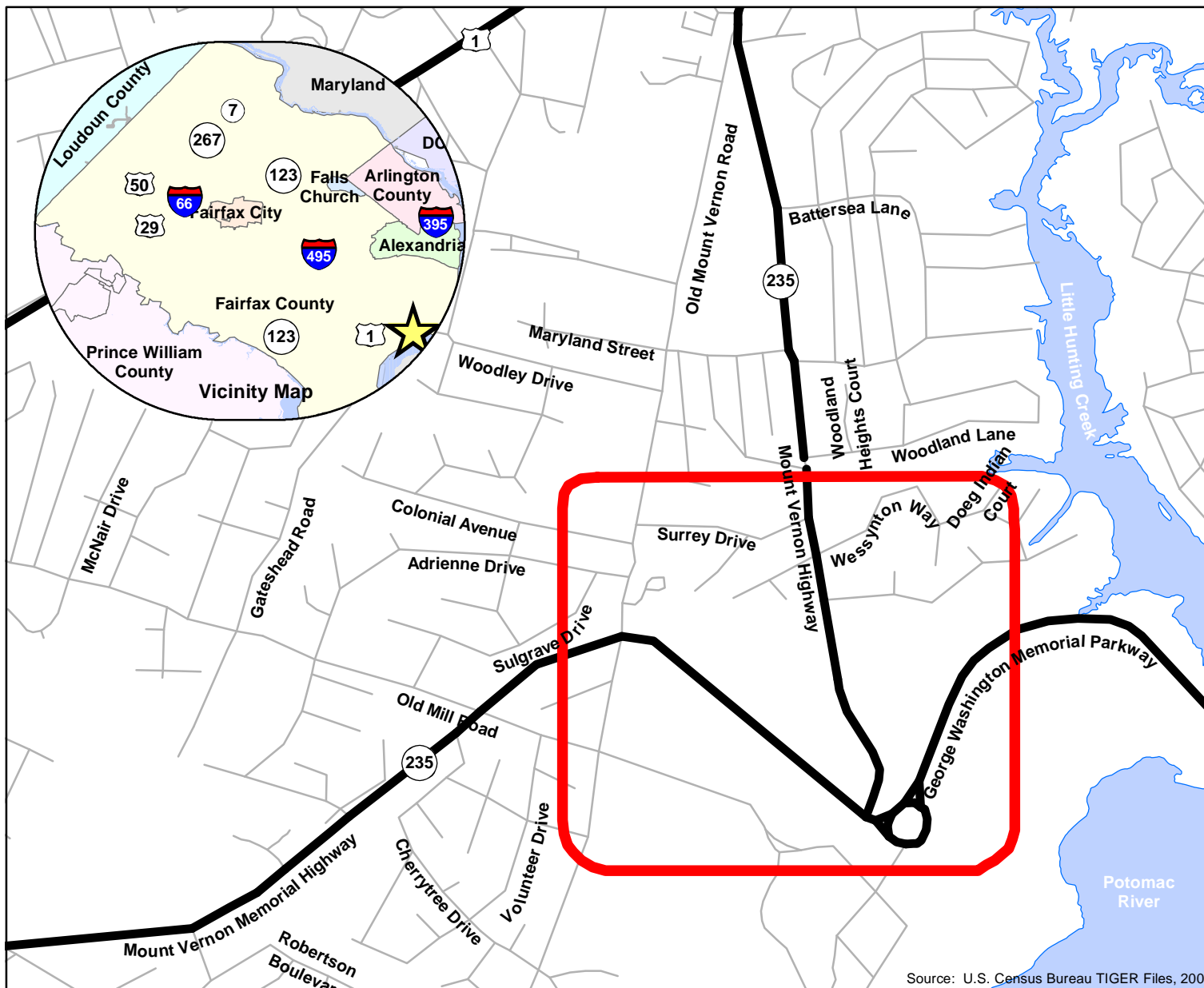
## **B. Existing Roadways**

The roadway network around Mount Vernon consists of the GWMP, Route 235, and local streets. **Figure 3-4** shows the roadway network within and adjacent to the study area. The following sections describe the characteristics of the GWMP, the Mount Vernon Trail, and Route 235, which are shown in more detail for the study area on **Figure 3-5**.

### *B.1. George Washington Memorial Parkway (GWMP)*

The GWMP is a linear park that stretches through Virginia, Maryland, and the District of Columbia. It is composed of four segments totaling 38.3 miles, including the Clara Barton Parkway, the Spout Run Parkway, the Mount Vernon Memorial Highway, and the GWMP. It has a total area of 7,645 acres and received a total of 8,360,030 visitors during the 2001 Fiscal Year. The Park is owned by the federal government and is operated by the NPS. The GWMP is a scenic and historic roadway, offering recreational opportunities and serving to protect the Potomac River shoreline and watershed. It also serves as a commuter route for many local residents today.



Along the southern end approaching Mount Vernon, the Parkway is a four-lane roadway. It ends at the circle, which is a one-way traffic circle that circulates counter-clockwise. The following figures show the location of the GWMP within and near the study area.

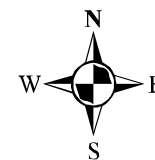


## Mount Vernon Circle Environmental Assessment

**Figure 3-4  
Roadway Network**

### Legend

-  Major Roads
-  Streets
-  General Study Area
-  Water



0 1,250 2,500 Feet











Source: U.S. Census Bureau TIGER Files, 2002



## Mount Vernon Circle Environmental Assessment

**Figure 3-5**  
**Mount Vernon Local Roadway  
and Parking Locations**

### Legend

-  Mt. Vernon Trail
-  George Washington Memorial Parkway
-  VA Route 235
-  Mount Vernon Traffic Circle
-  Bus Parking
-  East Lot
-  Route 235 Lot
-  West Lot



0 150 300 600 900 Feet



U.S. Department  
of Transportation  
Federal Highway  
Administration



Note: Roadways and parking lots were drawn utilizing aerial photography.

Source: United States Geological Survey, 2002.

### *B.2. Mount Vernon Trail*

The Mount Vernon Trail is a bicycle, jogging, and pedestrian trail that is 18.5 miles long. It begins at Mount Vernon and ends at Theodore Roosevelt Island near the Kennedy Center, crossing through the City of Alexandria. The NPS created the trail in 1973 so visitors could enjoy the diverse natural and historic areas along the Potomac River.

### *B.3. Route 235*

Route 235 is a state highway that enters the western portion of the study area and exits through the northern part of the study area. From the west, it diverges from US 1 and heads east until approximately 100 feet northwest of the circle. It then turns left and heads in a northerly direction. After it exits the study area, it merges with Old Mount Vernon Road, which in turn merges back into US 1. Within the study area, Route 235 is a two-lane roadway with 12-foot lanes.

## **C. Mount Vernon Parking**

### *C.1. Mount Vernon Parking Capacity*

Mount Vernon has two visitor parking lots located on NPS property for vehicles. **Figure 3-5** shows the location of these parking lots. The East Parking Lot is located east of the GWMP and contains 238 parking spaces. It has one entrance from the circle and one exit onto the GWMP. This parking lot also contains parking for recreational vehicles. The Mount Vernon Trail ends at the northern end of this parking lot. The West Parking Lot is located east of Route 235 North. The exit is located on the GWMP while the entrance is located on Route 235. The West Parking Lot contains 144 spaces. There is also a 42-space parking lot on Route 235 West approximately 300 feet northwest of the circle. This parking lot also serves a post office, and is owned by MVLA with a perpetual parking easement to NPS. Post office patrons and Mount Vernon visitors share this lot. Tour bus parking is located along the southern edge of Route 235 West. Overflow parking is currently accommodated in the circle. Shuttles are also used on peak days, such as George Washington's birthday.

### *C.2. Results of Previous Studies*

To determine the future demand for parking, the MVLA drafted a memorandum that predicts the current and future needs for parking. This section summarizes their methodology and results.

To determine the current capacity for parking, the amount of spaces as described in the section above were determined. It was determined that the East Parking Lot, West Parking Lot, and Route 235 West Parking Lot could hold a total of 424 vehicles. During busy days in the spring, summer, and fall, the NPS allows Mount Vernon visitors to park on the circle. The circle is estimated to accommodate 150 vehicles. On very busy days when the circle is full, people also park illegally along the roadways. By summing the amount of parking spaces in the parking lots and the estimate for the circle, the need for parking spaces during a busy day was calculated to be 599 spaces.

The MVLA does not expect a large increase in visitation. As shown in **Section 2.1**, visitation has not increased greatly over the past several years. However, the amount of time visitors spend at Mount Vernon has increased. In 1992, the average time of stay was 99 minutes. Since more experiences in the historic area have been added to Mount Vernon, the amount of time a visitor

spends at Mount Vernon has increased to 135 minutes in 1998. To determine the increased amount of time that visitors might spend at Mount Vernon, additional time spent at each facility was estimated (see **Table 3-7**).

**Table 3-7: Time Spent at Mount Vernon Facilities**

Facility	Method of Calculation	Time Spent at Facility
Orientation building	Includes film	23 minutes
Museum	Four minutes per gallery (5 galleries) plus six minutes for George and Martha Experience	26 minutes
Education center	Two minutes per gallery (15 galleries), nine minutes for Revolutionary War Theater, eight minutes for Presidential Theater	47 minutes
Shopping and restaurant experience		5 minutes
<b>Total Additional Time</b>		<b>101 Minutes</b>

Source: MVLA

When estimating visitor time spent at Mount Vernon, the MVLA recognized that different people might spend different amounts of time at Mount Vernon depending on their interests or whether they had a set schedule and were unable to see various parts of Mount Vernon. As a result, parking demand for visitors was calculated based on visitors staying for an additional 50, 75, and 101 minutes. They also assumed that people would arrive by car, bus, and boat in the same proportion that they have for the past 25 years (the ratios have been consistent for the past 25 years). **Table 3-8** shows the resulting chart for demand and parking spaces.

**Table 3-8: Need for Parking Spaces**

Time Spent at Mount Vernon per Visitor	Current Need for Parking	Additional Spaces Required
135 minutes current	599 spaces	175 spaces
135 minutes current + 50 minutes additional = 185 minutes total	820 spaces	396 spaces
135 minutes current + 75 minutes additional = 210 minutes	931 spaces	507 spaces
135 minutes current + 101 minutes additional = 236 minutes total	1,047 spaces	623 spaces

Source: MVLA

As shown in the table above, a need for more parking spaces exists. While visitations will not greatly increase, the length of visitor stay will likely increase in the future, thus creating higher demand for parking spaces.

### *C.3. Mount Vernon Parking Usage*

The parking situation for visitors at Mount Vernon was analyzed for current conditions and projections made for future conditions. Mount Vernon does not expect the number of annual or daily visitors to increase in the future. Thus, the primary difference between the current and future conditions is the average length of time that visitors are expected to spend at Mount Vernon. The predicted increase is from 135 minutes (2.25 hours) to 236 minutes (3.93 hours).

Two sets of data were available:

- Hourly ticket sales for visitors to Mount Vernon for the period of May 14, 2002 through May 28, 2002 (excluding the 23<sup>rd</sup> and 24<sup>th</sup>)
- Daily ticket sales for visitors from January 1, 2001 to December 31, 2001

Sample surveys conducted on August 22 and 24, 2002, determined that existing auto occupancy is 2.5 persons per vehicle on weekdays and 2.8 persons per vehicle on weekends and holidays. Hourly ticket records for adults, seniors, children, and annual pass holders for the period May 14 to May 28, 2002 were used to determine the number of visitors arriving per hour during that period. Other ticket-holders were assumed to arrive by bus.

Applying the auto occupancy to those visitors yielded hourly arrivals by auto. Using the amount of time spent at Mount Vernon per visitor (estimated by the MVLA to be 135 minutes), the number of parking spaces occupied each hour was determined. A spreadsheet was created to calculate the net accumulation of vehicles that parked each hour. These results were based on the number of vehicles that parked before the hour began, arrived during the hour, and left during the hour.

### *Demand Analysis*

Using the May counts, the peak number of vehicles parked each day and the total number of vehicles arriving at Mount Vernon each day was determined. By dividing the sum of the peak cars parked by the sum of the total cars arriving, a correlation coefficient of 0.41 was determined, with an  $R^2$  value of 0.88. The same process was used for the future condition, resulting in a correlation coefficient of 0.63 ( $R^2 = 0.98$ ). According to the assumptions listed above, the same number of total vehicles will arrive in the future, and the peak number of vehicles parked will increase due to longer average visit duration. The percent of days when parking will exceed existing visitor capacity was found by dividing the number of days within the data set that exceeds the parking capacity by the total number of days. This was done separately for weekdays and for weekends/holidays due to the increased vehicle occupancy ratios and visitor demand. The vehicle occupancy ratios from August 2002 and the correlation coefficients from May 2002 were used with the 2001 daily visitors data to calculate the peak number of parked cars for 2001 and to predict the peak number of parked cars for the future. **Table 3-9** shows the following results:

**Table 3-9: Average Peak Number of Parked Vehicles**

(May 2001 Sample Period)		Weekday	Weekend/ Holiday
Existing capacity	With circle	574	
	Without circle	424	
Average peak number of parked vehicles		190	346
Number of spaces in deficit	With circle	--	--
	Without circle	--	--
Percent of days exceeding capacity	With circle	4% (15 days)	
	Without circle	13% (47 days)	

The next step was to determine the number of days that all vehicles are able to park (currently and in the future) using the existing capacity, and then to find the required number of spaces to accommodate peak daily parking demand 90% of the days in the future. This was done by

applying the coefficient to the number of vehicles arriving each day in 2001 to determine the peak parking demand for each day.

The 90th percentile demand level was chosen as the design criterion since it is impractical to accommodate the sharp peaks on specific days such as George Washington's birthday and certain holiday weekends. To accommodate vehicles the remaining 10% of the days (about 37 days), visitors are currently directed to park in employee lots and shuttle buses are used from remote parking areas.

To determine the number of spaces that would be required to accommodate all vehicles for a specified number of days per year, the peak number of parked vehicles per day was used. **Table 3-10** gives the required spaces for 2001 and for the future, as well as the difference between those numbers and the current capacity (without the circle). For all visitors to be accommodated on 90% of the days, 714 spaces will need to be available in the future.

**Table 3-10: Number of Spaces**

Percentile*	2001			Future		
	Required	Existing	New	Required	Existing	New
95 <sup>th</sup>	546	424	122	838	424	414
90 <sup>th</sup>	465	424	41	714	424	290
85 <sup>th</sup>	402	424	—	617	424	193

\* Based on 2001 characteristics and data

If the number of parking spaces does not increase, the existing lots (without the circle) would only accommodate vehicles 63.5% of the days, resulting in a parking deficiency on 133 days.

### *Conclusion*

In the current situation, visitors are able to park within the visitor parking lots on 87% of the days of the year, and they are accommodated with the addition of the circle for 97% of the days. According to the analysis, there are 47 days (13%) when visitors are directed to park in the circle because the three visitor lots are full, and for 15 of those days, the circle also is filled to capacity. Mount Vernon records indicate that parking attendants directed vehicles to park in the circle 60 days in 2001, validating the analysis. **Figure A9** in Appendix A shows existing parking conditions.

In the future, there will be 135 days (37%) when existing visitor lots will not accommodate all arriving vehicles, and 20% of those days (73 days), the number of vehicles also will exceed the capacity of the circle. **Figure A10** in Appendix A shows future parking conditions.

Therefore, in the future, in order to park 90% of the vehicles in visitor lots (not including parking in the circle), an additional 290 spaces must be constructed. If 290 spaces were added to the existing 424 existing visitor spaces, visitors would be unable to find a space in a parking lot 37 days a year (10%). For alternatives that include the expansion of existing lots (160 spaces) and an overflow lot, visitors will be accommodated in the main parking lots — not using the overflow lot — 82% of the days. Visitors will use the overflow lot 66 days (18%), and would require additional parking and/or shuttle service for 37 of those days. The overflow lot should have 130 spaces to serve the 90th percentile demand.

## D. Traffic Operations

### D.1. Traffic Counts

Traffic in the vicinity of Mount Vernon consists of a mix of vehicle types and modes of transportation. Vehicular traffic consists of personal automobiles, buses, motorcycles, and bicycles and includes commuter traffic as well as traffic traveling to and from Mount Vernon. In addition to vehicular traffic, a high volume of pedestrian traffic is present in the Mount Vernon area. Commercial truck traffic is prohibited on the GWMP and is minimal along the studied sections of Route 235. Historical and current traffic count data, consisting of average daily traffic (ADT) counts and turning movement counts, was gathered and analyzed to determine traffic characteristics and historical growth patterns. **Figure A11** in Appendix A shows the locations where current traffic counts were taken.

**Historical Traffic Counts** — To develop a baseline of traffic in the Mount Vernon area, historical traffic counts were gathered from the Virginia Department of Transportation (VDOT) and the NPS, where available, for Route 235 and GWMP. Recent turning movement counts for the intersection of Route 235 North and Route 235 West, and Route 235 west of the circle were obtained from VDOT. **Figure A12** in Appendix A summarizes the historical ADT and turning movement count data obtained from VDOT and the NPS. GWMP data indicates that traffic volumes have remained relatively constant over the past 10 years.

**New Traffic Counts** — To determine current traffic demand in the Mount Vernon area, a series of daily counts on GWMP and Route 235 and intersection turning movement counts were performed in May 2002. Daily traffic volume counts were performed for both weekday and weekend conditions for five consecutive days. Intersection turning movement counts were performed during weekday AM, weekday PM, and weekend midday peak hour conditions. **Figure A13** in Appendix A summarizes the 2002 traffic count data.

The traffic counts show a heavy peaking characteristic during the traditional weekday morning and evening commuting peak periods of 7:00 to 9:00 AM and 4:00 to 6:00 PM. Weekend traffic has a less defined peak with the highest traffic volumes occurring between 1:30 and 2:30 PM. Due to its operating hours (8:00 or 9:00 AM to 4:00 or 5:00 PM, depending on the month), visitors to Mount Vernon generally arrive and depart during off-peak hours.

### D.2. Operational Analysis

To analyze the traffic operations characteristics of the circle and adjacent roadways, a traffic operations and simulation model was constructed in Synchro 5.0 and SimTraffic. Traffic volume data and roadway/intersection geometry obtained in May 2002 were input into the Synchro network to perform capacity analyses for existing weekday AM, weekday PM, and weekend midday peak hour conditions. The Highway Capacity Manual (TRB Special Report 209, 2000) control delay methodologies were used in reporting the results.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a set time period. Capacity is combined with level-of-service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The Highway Capacity Manual defines six levels of service, LOS A through LOS F, with A representing the shortest average delays and F representing the longest average delays. Capacity analyses were performed for the intersections of Route 235 North and

Route 235 West, Route 235 North at the West Parking Lot entrance, the circle at the East Parking Lot entrance, and GWMP at the exits from the parking lots.

**Intersection of Route 235 North and Route 235 West** — The intersection of Route 235 North and Route 235 West located west of the circle currently operates as a four-way stop controlled intersection. During the weekday AM peak hour, when heavy commuter traffic is passing through the intersection traveling toward Alexandria, Arlington, and Washington, D.C., the intersection operates at LOS F with long queues likely forming as each vehicle stops at the intersection. Likewise, in the weekday PM peak hour, when commuter traffic is returning home, the intersection again operates at LOS F, with long queues forming particularly on the westbound approach, where the SimTraffic model shows queues reaching back beyond the northern entrance to the circle on GWMP. During the weekend midday peak hour, the intersection currently operates at LOS D, with long delays experienced on the westbound approach from the circle.

**Table 3-11** summarizes the LOS and average delay at the intersection of Route 235 North and Route 235 West for existing 2002 conditions.

**Table 3-11: Intersection of Route 235 North and Route 235 West**

Movement/Approach Lane (4-Way Stop)	LOS (Delay, sec)		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekend Midday Peak Hour
Northbound Driveway; left-through-right	B (10.4)	B (10.5)	A (8.8)
Southbound Route 235; left-through-right	C (18.1)	B (11.6)	A (9.3)
Eastbound Route 235; left-through-right	F (151.4)	E (35.3)	B (12.0)
Westbound GWMP; left-through	D (26.7)	F (204.4)	C (16.7)
Westbound GWMP; right	A (8.0)	A (9.8)	A (6.6)
<b>Overall</b>	<b>F (87.4)</b>	<b>F (110.0)</b>	<b>B (13.8)</b>

Source: Kimley-Horn and Associates, Inc., 2002

**Intersection of Route 235 North and West Parking Lot Entrance** — The intersection of Route 235 North and the West Parking Lot entrance located north of the intersection of Route 235 North and Route 235 West currently operates as an unsignalized intersection with traffic restricted to vehicles turning into the parking area only. However, during the traffic counts, occasional vehicles illegally exiting the parking area were observed. Due to the restriction of traffic at this intersection, little or no delay is experienced during any of the three peak periods analyzed.

**Intersection of Mount Vernon Traffic Circle and East Parking Lot Entrance** — The intersection of the circle and the East Parking Lot entrance located in the southeast quadrant of the circle currently operates as an unsignalized intersection with traffic restricted to traffic traveling counterclockwise around the circle or entering the parking area. Due to the lack of conflicting traffic movements at this intersection, little or no delay is experienced during any of the three peak periods analyzed.

**Intersection of George Washington Memorial Parkway and Parking Lot Exits** — The intersection of the GWMP and the parking lot exits, located northeast of the circle, currently operates as a two-way stop controlled intersection. During the weekday AM peak hour, little traffic exits the parking areas; however, the vehicles that do exit, particularly left-turning vehicles, experience moderate to long delays, whereas traffic on GWMP passes nearly unimpeded, resulting in an overall LOS A for the intersection.

During the weekday PM peak hour, traffic traveling on GWMP experiences little or no delay at this intersection; however, queues from the downstream intersection of Route 235 North and Route 235 West were shown in the SimTraffic simulation to approach the intersection of GWMP and the parking lot exits, which would delay traffic. Traffic exiting the parking areas was found to experience long delays due to the high volume of through traffic on GWMP at the intersection.

During weekend midday peak hour conditions, traffic on GWMP passes through the intersection with little or no delay while traffic exiting the parking areas experiences moderate delays.

**Table 3-12** summarizes the LOS and average delay at the intersection of GWMP and the parking lot exits for existing 2002 conditions.

**Table 3-12: Intersection of George Washington Memorial Parkway and Parking Lot Exits**

Movement/Approach Lane (Unsignalized)	LOS (Delay, sec)		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekend Midday Peak Hour
Northbound GWMP; through traffic	A (0.0)	A (0.0)	A (0.0)
Southbound GWMP; through traffic	A (0.0)	A (0.0)	A (0.0)
Eastbound parking lot exit; left-right	B (11.2)	F (50.9)	C (16.9)
Westbound parking lot exit; left-right	E (40.9)	F (56.4)	C (18.4)

Source: Kimley-Horn and Associates, Inc., 2002

**Mount Vernon Traffic Circle** — Traffic using the circle, as previously discussed, experiences delays during the weekday PM peak hour due to the queuing of traffic from the intersection of Route 235 North and Route 235 West. Additionally, traffic using the circle is further delayed during times of peak visitation to Mount Vernon by vehicles mounting the curb to park in the center of the circle and by vehicles reentering the roadway from parking inside the circle.

#### *D.3. Accident Information*

Traffic accident data has been obtained for the roadways and intersections in the study area from VDOT and the NPS for 1997 through 2001. During that period a total of 66 accidents occurred in or near the study area. Accidents predominantly involved property damage only (PDO); however, one fatal accident and 13 injury accidents did occur. Sixty four percent of the recorded accidents occurred during daylight hours, 24% occurred at night, and 12% occurred during either dawn or dusk conditions.

Weather and pavement conditions were not specified for the vast majority of the accident data, nor were vehicle type or collision type. Likewise, many of the accident records did not specify the major contributing factor or cause of the accident; however, of those with contributing factors listed, driver inattention, excessive speed, deer or other animals running out into the roadway, and driver intoxication were common causes. **Table 3-13** summarizes the accident history in the Mount Vernon vicinity by location from 1997 through 2001.

**Table 3-13: Accidents by Location**

Location	1997	1998	1999	2000	2001	5-Year Total
Intersection of Route 235 North and Route 235 West	5	2	4	2	5	18
Merge — Road From Route 235 & Mount Vernon Circle	2	1	0	0	0	3
Diverge — Mount Vernon Circle to NB GWMP	3	1	1	2	1	8
Merge — Mount Vernon Circle & SB GWMP	1	3	5	4	3	16
Unspecified Location	0	2	2	1	4	9
<b>Total Accidents</b>	<b>11</b>	<b>9</b>	<b>12</b>	<b>9</b>	<b>13</b>	<b>54</b>

Source: Kimley-Horn and Associates, Inc., 2002

## 4. Environmental Consequences

### 4.1. Socioeconomic Environment

#### A. Land Use and Community Facilities

*No Action Alternative* — No impact to existing land use or community facilities is anticipated.

*Preferred Build Parking Alternative* — No impact to existing land use or community facilities is anticipated. An indirect positive impact of providing additional parking is less congestion in the parking lot servicing the Mount Vernon post office.

*Preferred Trail Improvement Alternative* — The trail improvement is expected to have a minor positive impact on land use and the community. The trail extension will join two existing trails, both enhancing the recreational value of the existing trails and improving the safety benefits for pedestrians, cyclists, and motorists in the Mount Vernon area. The trail extension may increase the use of bikes to commute rather than personal vehicles, improving the quality of life in the area by decreasing congestion and air/noise pollution.

Conclusion: No impacts to the land use and community facilities are anticipated the No Action and Preferred Build Parking Alternatives. A minor positive impact is expected from the Preferred Trail Improvement Alternative. No impairment to the Park's land use and community facilities would occur.

#### B. Demographics

*No Action Alternative* — No change in the demographics is anticipated.

*Preferred Build Parking Alternative* — No change in the demographics is anticipated.

*Preferred Trail Improvement Alternative* — No change in the demographics is anticipated.

Conclusion: No impacts to area demographics would occur under any of the alternatives.

#### C. Economics

*No Action Alternative* — No measurable impact to the economy in the vicinity of Mount Vernon is anticipated. However, if adequate parking spaces are not available, the number of visitors to Mount Vernon may decrease, resulting in an adverse economic impact to the area.

*Preferred Build Parking Alternative* — No impact to the economy in the vicinity of Mount Vernon is anticipated. The parking alternative does not assume that a greater number of guests will visit Mount Vernon, but that the existing visitors will stay longer, potentially affecting arrival/departure times. Visitation to Mount Vernon is not expected to change as long as adequate parking is available to visitors.

*Preferred Trail Improvement Alternative* — No impact to the economy is anticipated.

Conclusion: No impacts to area economy would occur under any of the alternatives.

## **D. Environmental Justice**

*No Action Alternative* — No impact to minority or low-income populations is anticipated.

*Build Parking and Trail Alternative* — No impact to minority or low-income populations is anticipated.

Conclusion: No impact to minority or low-income populations in the vicinity of Mount Vernon would occur under any of the alternatives.

## **E. Aesthetics and Viewsheds**

*No Action Alternative* — No aesthetic change in the vicinity of Mount Vernon or to the GWMP viewshed is anticipated. However, with the No Action Alternative, parking on the circle will continue to create an undesirable visual impact.

*Preferred Build Parking Alternative* — The West Lot expansion is not anticipated to adversely affect the aesthetics of Mount Vernon or adversely affect the GWMP viewshed. The new parking area will be joined to the north end of the West Lot, and will curve slightly northwest. This preliminary design was chosen to balance the concerns of drainage and runoff with those of preserving the viewshed. Due to the steep grade, distance, and heavy forestation between the GWMP and the new parking area, it is anticipated that the West Lot expansion will not be clearly visible from the Parkway. The expansion also will not be visible from the Mount Vernon Estate due to the distance and the brick wall surrounding the property.

The overflow lot on Mount Vernon property is behind the brick wall along Route 235. It is anticipated that this lot will not be clearly visible from the GWMP due to the presence of the brick wall. Although the parking lot is on the Mount Vernon Estate property, it also is anticipated that it will not be visible to visitors touring Mount Vernon.

*Preferred Trail Improvement Alternative* — The proposed trail extension would be visible from the GWMP for the majority of its length, as is the existing trail. It is anticipated that the design of the trail would minimize the impacts to the GWMP viewshed and aesthetics of Mount Vernon through the final choice of surface, colors, geometry, and other features. In addition, trees and other plantings will be used to visually screen the trail from the GWMP.

Conclusion: No adverse impacts are anticipated to occur to the aesthetics and viewsheds of Mount Vernon and the GWMP under any of the alternatives. Consultation with the Virginia State Historic Preservation Office as stipulated by Section 106 of the National Historic Preservation Act of 1966, as amended, will be necessary to reach a consensus determination of effect on historic properties for the aesthetics and viewshed of Mount Vernon and the GWMP.

## **4.2. Cultural Resources**

Impacts on historic architectural resources and archaeological resources were investigated in *Cultural Resources Identification Survey: Improvements to Traffic and Visitor Parking, George Washington's Mount Vernon Estate and Gardens* (Coastal Carolina Research, Inc., October 2003).

### **A. Historic Architectural Resources**

*No Action Alternative* — No impact on historic architectural resources is anticipated.

*Preferred Build Parking Alternative* — Based on the results of the architectural investigations, no impact on historic architectural resources is anticipated. Historic resources potentially impacted by this project include Mount Vernon and the GWMP. The area between the West Lot expansion and the GWMP is wooded, screening the view of the lot from the Parkway. In addition, the parking lot is at a higher elevation than the Parkway, further screening the view. The expansion is also not visible from Mount Vernon. The overflow parking lot will not be visible from the Mansion house or grounds, and will not be visible from the GWMP.

*Preferred Trail Improvement Alternative* — Based on the results of the architectural investigations, a minor impact on the GWMP is anticipated. The trail extension will be located along the Parkway, and will be partially visible by drivers. The design of the trail will include mitigation measures such as vegetative screening to minimize the visual impact on the Parkway.

Conclusion: No impact on architectural resources would occur under the No Action Alternative and no adverse impacts are anticipated to occur under the Parking Alternative. No adverse impacts are anticipated to occur under the Trail Alternative. Consultation with the Virginia State Historic Preservation Office as stipulated by Section 106 of the National Historic Preservation Act of 1966, as amended, will be necessary to reach a consensus determination of effect on the historic architectural resources of Mount Vernon and the GWMP.

## **B. Archaeological Resources**

*No Action Alternative* — No impact on archaeological resources is anticipated.

*Preferred Build Alternative* — Based on the results of the archaeological investigations, no effect on significant archaeological resources is anticipated.

*Preferred Trail Improvement Alternative* — Based on the results of the archaeological investigations, no effect on significant archaeological resources is anticipated.

Conclusion: No impact on significant archaeological resources is anticipated under any of the alternatives. Consultation with the Virginia State Historic Preservation Office as stipulated by Section 106 of the National Historic Preservation Act of 1966, as amended, will be necessary to reach a consensus determination of effect on archaeological resources of Mount Vernon and the GWMP.

## **4.3. Biological Resources**

### **A. Vegetation**

*No Action Alternative* — No change to existing vegetation would result. However, with the No Action Alternative, parking on the circle is not alleviated. The vehicles damage not only grass but also trees by compacting soil above the tree roots.

*Preferred Build Parking Alternative* — The West Lot expansion will impact approximately 1.36 acres of forested land. Of the 463 trees with a diameter greater than 6 inches identified by the tree survey, 115 will be impacted by the portion of the West Lot Expansion. Over 85 percent of the trees that will be removed are oak trees, and the remaining trees are holly, pine, dogwood, and sycamore. Eight of the trees are over 24 inches in diameter, and over 60 percent of the impacted trees are 12 inches in diameter or smaller. The parking lot was designed to minimize the impacts

to trees through placement and design of the parking lot, including the use of islands to preserve the larger trees. The overflow lot will impact approximately 2.12 acres of maintained grassy land and 21 trees less than 6 inches in diameter. Two oak trees larger than 6 inches in diameter will be removed for the driveway to the overflow lot. GWMP staff identified a number of additional tree species on the site which reach maturity under 6 inches and would not have been identified in the tree survey. Flowering dogwoods, Black haw, arrow-wood, and viburnum Hercules club also are present on the site. Appendix B includes a list of trees identified in the area with the diameter and type of each, as well as a list of the trees that will be removed.

The tree survey conducted by the FHWA inventoried the type and diameter at breast height (dbh) of trees within the impact area that were 6 inches or greater in diameter. The area proposed to be cleared for the parking area is a stand of mature oak woods containing very few non-native species. The oaks are mostly Southern Red Oak (*Quercus falcata*), although large specimens of Rock Chestnut Oak (*Quercus prinus*) and White Oak (*Quercus alba*) also are present. It has been estimated by the NPS that some of the trees are at least 150 years old. Soil disturbance and loss of tree canopy as a result of the new parking lot may cause the growth of additional exotic plant species in that area.

*Preferred Trail Improvement Alternative* — The trail improvement will impact approximately 0.17 acres of forested land. The trail has been designed to avoid large trees where possible. A total of 23 trees larger than 6 inches will be removed, including 17 oak trees, five holly trees, and one tree of unknown species. Appendix B identifies the diameter and type of trees that will be removed.

Conclusion: No change to vegetation would occur under the No Action Alternative, although the current undesirable conditions to the circle would remain. A total of 115 trees over 6 inches in diameter on 1.36 forested acres, two trees over 6 inches in diameter adjacent to the road, and 21 trees on 2.12 acres of maintained grassy land will be impacted by the Parking Alternative. A total of 23 trees on 0.17 acres of forested land would be impacted by the Trail Alternative.

## **B. Wildlife**

*No Action Alternative* — No impact to wildlife is anticipated.

*Preferred Build Parking Alternative* — The wooded area may contain habitats for nesting bird species, and for migratory birds during the spring and fall migrations. Forest fragmentation leads to isolated local populations of creatures, fewer habitat options for large animals, and a reduction in desirable habitat for birds and other animals. According to *Extension Notes – Conserving the Forest Interior: A Threatened Wildlife Habitat*, forest interior can be determined by measuring 100 meters (approximately 330 feet) into the forest from a human-created opening such as a road or field. The Preferred Alternative is within 300 feet of the GWMP and Route 235 North, and impacts to wildlife resources are unknown. Some impacts to wildlife resources by the overflow lot are anticipated.

*Preferred Trail Improvement Alternative* — Some impacts to wildlife resources by the proposed trail extension are anticipated.

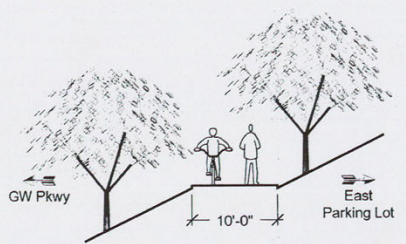
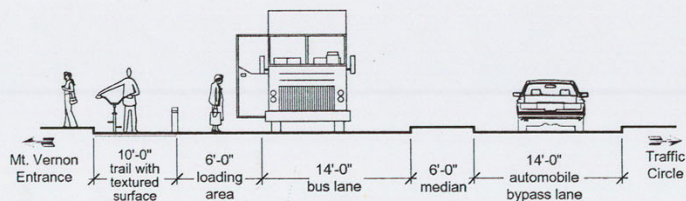
Conclusion: No impacts on wildlife are anticipated under the No Action Alternative. Some impacts to wildlife resources are anticipated under the Preferred Build Parking and Preferred Trail Improvement Alternatives.

MAP NOTE:  
ALL EXISTING TOPOGRAPHIC INFORMATION SHOWN ON  
THIS SHEET WAS TAKEN FROM FAIRFAX COUNTY GIS  
DEPARTMENT, ORTHOGRAPHIC PHOTOS AND  
HARDCOPY PLANS PROVIDED BY OTHERS WERE USED  
TO BEST REPRESENT EXISTING SITE FEATURES.



**Mount Vernon Estate and Gardens**

**Mount Vernon Estate and Gardens**



**SIGN: Cyclists Must Walk Bikes**

**Restaurant and Gift Shop**

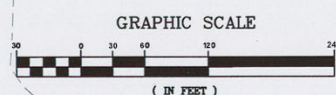
**Proposed Trail with Textured Surface and 6" Curb Adjacent to Vehicular Lane**

**Relocated Median**

**Bus Loading Area with Bollards**

**Mt. Vernon Entrance**

**SIGN: Cyclists Must Walk Bikes**



PROJECT: MOUNT VERNON CIRCLE  
ENVIRONMENTAL  
ASSESSMENT

**Figure 4-1  
Preferred Build Parking  
Alternative and Preferred  
Trail Improvement**



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ATTACHED REFERENCE FILES:  
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JOB NUMBER: 011675003  
SHEET NUMBER: 1 of 1

### **C. Threatened and Endangered Species**

The Bald Eagle is known to exist within the study area, and three additional threatened or endangered species are known to exist within Fairfax County. There is expected to be no impact on plant or insect threatened and endangered species based on correspondence from the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR), the U.S. Fish and Wildlife Service (FWS), and the Virginia Department of Game and Inland Fisheries (VDGIF). There is no indication of State Natural Area Preserves under DCR's jurisdiction, and it is anticipated that this project will not adversely impact any natural heritage resources.

Conclusion: No impacts on threatened and endangered species would occur under any of the alternatives, as stated by the DCR, FWS, and VDGIF (see Appendix C).

### **D. Wetlands**

*No Action Alternative* — No impact to wetland resources is anticipated.

*Preferred Build Parking Alternative* — No impact to wetland resources is anticipated. There are no wetlands within 750 feet of the construction limits of the parking alternative.

*Preferred Trail Improvement Alternative* — No impact to wetland resources is anticipated.

Conclusion: No impacts to wetlands would occur under any of the alternatives.

## **4.4. Physical Environment**

### **A. Air Quality**

*No Action Alternative* — No change to air quality levels is anticipated.

*Preferred Build Parking Alternative* — No change to air quality levels is anticipated. Traffic volumes are not expected to increase, and changes to travel patterns and access will be minor.

*Preferred Trail Improvement Alternative* — No change to air quality levels is anticipated. Minor air quality improvements may be achieved with increased bicycle commuters.

Conclusion: No impacts to area air quality would occur under any of the alternatives.

### **B. Water Resources and Quality**

*No Action Alternative* — No Coastal Zone impacts are anticipated.

*Preferred Build Parking Alternative* — There are no RPAs within approximately 1,300 feet of the West Lot expansion. The expansion will add approximately 1.36 acres of impervious area within the study area. The project would be designed to meet the federal, state, and local regulations regarding stormwater quality and quantity runoff. The use of an underground stormwater management system, porous pavements and geo-textile grid, gravel parking for the overflow lot, or a combination thereof would be applied to protect the water quality of this sensitive watershed. Also, the parking lot stormwater management system would be designed to impact as few trees as possible by utilizing an underground drainage system.

*Preferred Trail Improvement Alternative* — There are no RPAs within approximately 650 feet of the trail extension. The trail extension will add approximately 0.17 acres of impervious area within the project area. There will be existing and new vegetation bordering the trail to help distribute the stormwater runoff. The additional runoff from this surface is sufficiently small so that mitigation measures other than vegetation are not anticipated.

Conclusion: No impacts to water resources and quality would occur with the No Action Alternative. The water quality impacts associated with the proposed Parking Alternative would be mitigated with the stormwater system described above. Impacts from the Trail Alternative would be minimal, and are not anticipated to require mitigation beyond proposed vegetation.

### **C. Floodplains and Floodways**

*No Action Alternative* — No impact to floodplains is anticipated.

*Preferred Build Parking Alternative* — No impact to floodplains is anticipated. There is no encroachment by the parking alternative into floodplains.

*Preferred Trail Improvement Alternative* — No impact to floodplains is anticipated. There is no encroachment by the trail improvement into floodplains.

Conclusion: No impacts to floodplains or floodways would occur under any of the alternatives.

### **D. Physiography, Geology, and Soils**

*No Action Alternative* — No impacts are anticipated under this alternative.

*Preferred Build Parking Alternative* — The proposed parking expansion would require approximately 1.36 acres of clearing of existing forested vegetation, as well as 2.12 acres of maintained grassy land. Construction activities would incorporate erosion control measures to minimize soil loss. Disturbed areas would be re-vegetated once construction activities are complete.

*Preferred Trail Improvement Alternative* — The proposed trail extension would require approximately 0.17 acres of clearing. Construction activities would incorporate erosion control measures to minimize soil loss. Once construction activities are complete, the disturbed areas would be re-vegetated.

Conclusion: No impacts would occur under the No Action Alternative. The Parking and Trail Alternatives would require the clearing of vegetation; construction activities would incorporate re-vegetation.

### **E. Park Resources — Section 4(f) and 6(f) Resources**

*No Action Alternative* — No change to the existing resources is anticipated.

*Preferred Build Parking and Trail Alternative* — The proposed action is anticipated to enhance existing Park resources by removing parking from the circle and providing much needed

connectivity to the existing trail system. Therefore, a Section 4(f) resource analysis will not be required for this project. There are no Section 6(f) resources in the study area.

Conclusion: Although clearing of NPS land would be necessary, the proposed actions are also anticipated to enhance Park resources. Therefore, no impairment to the existing Park resources would occur, and a Section 4(f) resources analysis is not required. There are no Section 6(f) resources in the study area.

## **F. Noise**

*No Action Alternative* — No change in existing noise sources or noise levels is anticipated.

*Preferred Build Parking Alternative* — No change in existing noise sources or noise levels is anticipated (other than short-term construction noise) for the new parking areas.

*Preferred Trail Improvement Alternative* — No change in existing noise sources or noise levels is anticipated (other than short-term construction noise) for the trail improvement.

Conclusion: No long-term noise impacts would occur under either alternative. Construction of the Parking and Trail Alternatives would result in short-term noise impacts.

## **G. Hazardous Materials and Waste**

*No Action Alternative* — No impacts to hazardous materials are anticipated.

*Preferred Build Parking and Trail Improvement Alternatives* — No evidence of hazardous materials has been found within the study area.

Conclusion: No impacts to hazardous materials are anticipated within or adjacent to the study area for any of the alternatives.

## **H. Energy**

*No Action Alternative* — No change in energy consumption is anticipated.

*Preferred Build Parking Alternative* — A minor decrease in energy consumption is anticipated for the project area as a result of the parking alternative. With additional parking available for visitors, less energy will be required for visitors circulating the area searching for a parking space. A minor increase in energy consumption is expected during construction.

*Preferred Trail Improvement Alternative* — No change in energy consumption is anticipated, other than minor improvements if the trail extension causes more commuters to use bicycles to commute to work. A minor increase in energy consumption is expected during construction.

Conclusion: No change in energy consumption would occur under the No Action Alternative. Minor long-term decreases in energy consumption are anticipated under the Parking and Trail Alternatives, with minor short-term increases during construction.

## **4.5. Mount Vernon Visitation, Traffic and Parking**

### **A. Mount Vernon Visitation**

*No Action Alternative and Preferred Build Parking Alternative* — MVLA has estimated that the average length of time visitors stay at Mount Vernon will increase in the future due to new and enhanced exhibits. However, the number of visitors is not anticipated to grow in the future. Since the parking facilities do not affect the number of visitors, no change in visitation is predicted for either the No Action Alternative or the Preferred Build Parking Alternative.

*Preferred Trail Improvement Alternative* — It is anticipated that there will be a minor positive impact on Mount Vernon visitation with the addition of the new trail. The trail improvement will connect two existing trails via a path that follows the GWMP and runs along the Mount Vernon visitor entrance. Although it is not an official trail, cyclists and pedestrians using the existing trails currently follow this general path (through the East Lot), often stopping at Mount Vernon to rest, use the restrooms, or to buy a snack. While Mount Vernon's official visitor numbers may not change as a result of the new trail, it is possible that the number of pedestrians and cyclists using the food court and gift shop will increase.

Conclusion: No changes to visitation would occur under the No Action or Parking Alternatives. A minor increase in visitation is anticipated under the Trail Alternative.

### **B. Existing Roadways**

*No Action Alternative* — No change from existing conditions is anticipated.

*Preferred Build Parking Alternative* — The parking alternative would have a minor impact on Route 235 West by adding a single new access point approximately 700 feet west of the intersection with Route 235 North. No roadway improvements are proposed in connection with this new access point. No other new access points are proposed.

*Preferred Trail Improvement Alternative* — The trail alternative is anticipated to have a minor impact on the GWMP at the circle. The trail is separated from the GWMP until the East Lot driveway, at which point it joins the road. When the trail is adjacent to the road, it will have a colored, highly-textured surface to highlight the separation to drivers and trail users and to encourage bicyclists to walk their bicycles on this portion of the trail. The trail improvement will not reduce the number of travel lanes for motorists traveling on the GWMP. The single travel lane on the circle is currently 50-feet wide, which will be reduced to 40-feet with the addition of the trail.

Conclusion: No impact to existing roadways would occur under the No Action Alternative. The Parking Alternative would have a minor impact on Route 235 West, and the Trail Alternative would have a minor impact on the GWMP at the circle.

### **C. Mount Vernon Parking**

*No Action Alternative* — An adverse impact is anticipated on the parking situation with the No Action Alternative. With this alternative, parking on the circle is not alleviated and neither the current nor the estimated future parking demand is met. Therefore, vehicles will continue to park in the circle with the increasing frequency as parking demand increases.

*Preferred Build Parking Alternative* — A positive impact is anticipated on the Mount Vernon parking situation with the parking alternative. Currently, during peak visitor hours, secured lots on Mount Vernon and the circle are used for overflow parking. This is an undesirable situation for the NPS, which would prefer that the circle not be used for parking; and for Mount Vernon, which would prefer that the secure employee lots not be used for visitor parking. The Preferred Alternative would provide sufficient parking to accommodate current overflow demand, as well as predicted future demand for 90 percent of the days.

*Preferred Trail Improvement Alternative* — The trail extension is anticipated to have a positive impact on the East Parking Lot. Currently, cyclists and pedestrians who wish to get from the north-side existing trail (which ends at the north end of the East Lot) to Mount Vernon or the west-side existing trail (beginning at the intersection of Route 235 North and Route 235 West) must walk or ride through the East Lot. This creates a potential safety hazard for pedestrians, cyclists, and motorists. With the trail improvement, cyclists and recreational pedestrians (those not traveling between Mount Vernon and their vehicles parked in the East Lot) will be directed away from the East Lot, improving conditions for all three groups.

Conclusion: The No Action Alternative would not meet the project purpose and need, and would not address the parking at the circle or trail connections. The proposed Parking and Trail Alternatives would meet the current and projected need for parking, alleviate the parking need at the circle, and provide much needed trail connectivity in the area.

## **D. Traffic Operations**

*No Action Alternative* — Traffic congestion in the circle area would be expected to worsen on peak days due to an increased use of parking in the circle as parking demand increases.

*Preferred Build Parking Alternative* — Traffic volumes were projected with the additional parking facilities in place, and traffic operations were analyzed for weekday AM, weekday PM, and weekend midday peak hour conditions. The analysis was performed for the four-way stop controlled intersection of Route 235, the intersection of GWMP and the parking lot exits, and Route 235 and the proposed overflow lot.

Traffic volume projections were based on the following assumptions:

- Since traffic has been stable on both Route 235 and GWMP, no overall growth in traffic was assumed
- Mount Vernon visitation will remain constant, although average parking duration will increase
- Directional distribution of traffic to and from Mount Vernon was assumed to remain the same as it is now, based on existing traffic volumes
- Traffic entering and exiting the West Lot will double, due to the diversion of traffic that currently parks in the circle to the West Lot expansion
- Traffic was assigned to parking lots in proportion to the number of spaces in each lot
- With increased average parking duration, more vehicles will be leaving Mount Vernon during peak periods. Therefore, traffic leaving the parking lots was increased by 30% for the PM peak hour and by 15% during the weekend peak hour.

Projected future volumes are shown in **Figure A14** in Appendix A.

The results of the analysis indicated slight increases in delay at almost all locations. As shown in **Table 4-1**, the four-way stop at the Route 235 intersection would continue to operate at LOS F

during weekday peak periods, with average delays nearly unchanged. Traffic operations would remain at acceptable levels during the weekend peak hour.

**Table 4-1: Intersection of Route 235 North and Route 235 West**

Traffic Condition (Unsignalized)	LOS (Delay, sec)		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekend Midday Peak Hour
Existing traffic	F (87.4)	F (110.0)	B (13.8)
Proposed traffic configuration	F (88.5)	F (111.8)	B (14.5)

Source: Kimley-Horn and Associates, Inc., 2002

As shown in **Table 4-2**, LOS would remain at F at the exit of the East and West Lots at GWMP during the PM peak hour, with average delays to vehicles exiting increasing by about 14%. Delays would remain unchanged during the AM peak hour, with only a slight increase in delay during the weekend peak hour.

**Table 4-2: Intersection of George Washington Memorial Parkway and Parking Lot Exits**

Traffic Condition (Unsignalized)	LOS (Delay, sec)		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekend Midday Peak Hour
Existing traffic	E (48.2)	F (118.1)	C (23.8)
Proposed traffic configuration	E (48.1)	F (135.1)	C (24.0)

Source: Kimley-Horn and Associates, Inc., 2002

As shown in **Table 4-3**, traffic would operate at acceptable levels of service (C during AM and PM peak hours, B during the weekend peak hour) at the intersection of the overflow lot with Route 235.

**Table 4-3: Intersection of Route 235 West and Overflow Lot**

Traffic Condition (Unsignalized)	LOS (Delay, sec)		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekend Midday Peak Hour
Proposed traffic configuration	C (20.8)	C (23.0)	B (13.6)

Source: Kimley-Horn and Associates, Inc., 2002

Based on the above analyses and discussion of traffic issues with both the SPP and citizens at the public meetings, no traffic improvements are recommended.

*Preferred Trail Improvement Alternative* — No traffic impact is anticipated from the Trail Improvement Alternative. The improved trail will cross three driveway locations: the exit from the East Parking Lot, the entrance to the East Parking Lot, and the staff entrance to Mount Vernon opposite Route 235 North. The trail also will cross Route 235 West. All of these crossings will be marked, and cyclists will be directed by signs to walk their bikes across the driveways or streets. The existing crosswalk across Route 235 West at the intersection of Route 235 North and Route 235 West will be repaved with a textured, easily visible surface to improve safety for pedestrians. Additional intelligent crosswalk technologies that enhance pedestrian and bicyclist detection may also be employed at this intersection to improve pedestrian and bicyclist safety. The low driveway volumes and low anticipated bicycle and pedestrian volumes are not anticipated to create any traffic operations or safety problems.

Conclusion: None of the alternatives would have any negative impacts on traffic operations in the area. The Trail Alternative would have a minor positive impact to reduce the conflicts between automobiles, pedestrians, and cyclists in the study area.

#### **4.6. Cumulative Impacts**

A number of additional improvements are currently underway in the vicinity of Mount Vernon and the southern end of the GWMP that may have a cumulative impact on this project, including:

- Repaving the Mount Vernon Trail from Mount Vernon to Fort Hunt (NPS)
- Placing headwalls and endwalls along the Mount Vernon Trail to prevent flooding (NPS)
- Applying for a cell tower to be located in the Fort Hunt area (the tower would be located on school property but would impact the GWMP viewshed) (NPS)

The following additional projects are in progress in the vicinity of Mount Vernon and the GWMP, but are not expected to impact the current project:

- Drafting an Environmental Assessment to study the possibility of widening US 1 from the Stafford County line south of Fairfax County to Alexandria (VDOT)
- Stabilizing the Riverside Park shoreline
- Reconstructing the two bridges along the Mount Vernon Trail — Bridge 6 is located south of Fort Hunt, and Bridge 12 is located just north of Fort Hunt (NPS)
- Installing a vault toilet at Riverside Park

Development of the proposed parking lots will remove the parking from the circle, therefore adding to the aesthetic and cultural landscape of the GWMP and Mount Vernon. The improvements to the Mount Vernon Trail result in much needed connectivity to the trail system. The proposed extension of the trail to connect with the Fairfax County trail system will enhance the experience of cyclists and pedestrians using the trail, and potentially encourage more trail users.

None of the alternatives are anticipated to have an impact on neighborhoods in the study area, the socioeconomic environment (discussed in **Section 4.1**) or cultural resources, including architectural and archaeological resources (described in **Section 4.2**). None of the alternatives are anticipated to have an impact on traffic patterns outside of the study area. The project assumes that the number of visitors to Mount Vernon will not change, and that parking facilities for the current visitors will be improved (discussed in **Section 4.5**).

#### **4.7. Summary of Impacts**

The impacts by each alternative are summarized in **Table 4-4**.

**Table 4-4: Impact Summary Table**

Criteria	No Action Alternative	Preferred Build Parking Alternative	Preferred Trail Improvement Alternative
<b>Socioeconomic Environment</b>			
Land use and community facilities	No impact	No impact	Minor positive impact
Demographics	No impact	No impact	No impact
Economics	No impact	No impact	No impact
Environmental justice	No impact	No impact	No impact
Aesthetics and viewsheds	No impact	No adverse impact is anticipated	No adverse impact is anticipated
<b>Cultural Resources</b>			
Historic architectural resources	No impact	No adverse impact is anticipated	No adverse impact is anticipated
Archaeological resources	No impact on significant resources is anticipated	No impact on significant resources is anticipated	No impact on significant resources is anticipated
<b>Biological Resources</b>			
Vegetation	No impact	This alternative would require clearing 1.36 acres of forested land, 2.12 acres of maintained grassy land, and 117 trees 6" DBH or greater	This alternative would require clearing of 0.17 acres of land with 23 trees 6" DBH or greater
Wildlife	No impact	Some impacts are anticipated	Some impacts are anticipated
Threatened and endangered species	No impact	No impact	No impact
Wetlands	No impact	No impact	No impact
<b>Physical Environment</b>			
Air quality	No impact	No impact	No impact
Water resources and quality	No impact	No impact	No impact
Floodplains and floodways	No impact	No impact	No impact
Physiography, geology, and soils	No impact	No significant change from existing conditions is anticipated	No change from existing conditions
Parkland – Sections 4(f) and 6(f) resources	No impact	No impact	No impact
Noise	No impact	Minor short-term impacts during construction	Minor short-term impacts during construction
Hazardous materials and waste	No impact	No impact	No impact
Energy	No impact	Minor short-term impacts during construction, and minor long-term positive impacts	Minor short-term impacts during construction, and minor long-term positive impacts
<b>Mount Vernon Visitation, Traffic and Parking</b>			
Mount Vernon visitation	No impact	Minor positive impact	Minor positive impact
Existing roadways	No impact	No impact	No impact
Mount Vernon parking	Negative impact	Would meet the current and future parking needs for Mount Vernon	No impact
Traffic operations	Negative impact	No change from existing conditions	Anticipated to reduce conflicts between bicycles, pedestrians, and vehicles

## 4.8. *Impairment Finding*

NPS Director's Order 12 requires an impairment finding for actions that impact NPS resources. According to NPS Management Policies,

"The 'fundamental purpose' of the national Park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve Park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on Park resources and values. However, the laws do give the Service the management discretion to allow impacts to Park resources and values when necessary and appropriate to fulfill the purposes of a park, so long as the impact does not constitute impairment of the affected resources and values. The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in professional judgment of the responsible NPS manager, would harm the integrity of Park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

"An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the park; or
- Identified as a goal in the Park's general management plan or other relevant NPS planning documents.

"An impact would be less likely to constitute an impairment to the extent that it is an unavoidable result, which cannot reasonably be further mitigated, of an action necessary to preserve or restore the integrity of Park resources or values."

This policy does not prohibit impacts to Park resources and values. The NPS has the discretion to allow impacts to Park resources and values when necessary and appropriate to fulfill the purposes of the Park, so long as the impacts do not constitute impairment. The current parking situation in the Mount Vernon area allows visitors to park on the circle when the existing visitor parking lots are at capacity. According to the analysis presented in **Section 3.5.C**, there are approximately 50 days a year when visitors are directed to park in the circle, and for 15 of those days, the circle also is filled to capacity. Projected increased parking demand as a result of expanded programs at Mount Vernon will substantially increase the number of days that additional parking is needed. This results in an undesirable situation for the NPS and the MVLA, since parked vehicles negatively impacts the aesthetics of the GWMP and Mount Vernon, soils and vegetation on the circle, and traffic operations in the area. The Preferred Build Parking Alternative proposes a 150-space expansion of the existing West Lot on NPS land, and a 140-space overflow lot behind the wall south of Route 235 West on Mount Vernon property. Since it is estimated that the circle currently accommodates a maximum of 150 parked vehicles, the West Lot expansion would

allow visitors to use one of the parking lots rather than parking in the circle (which would no longer be allowed). On the days when the number of visitors exceeds the available spaces in the West and East Lots, vehicles would be directed to Park in the overflow lot on Mount Vernon property. The proposed parking alternative would restore the integrity of the circle.

The West Lot expansion will impact approximately 1.36 acres of forested land, including 115 trees. The overflow lot will impact approximately 2.12 acres of maintained grassy land, including 21 trees less than six inches in diameter. Two oak trees larger than six inches in diameter will be removed for the driveway to the overflow lot.

The proposed trail improvement will impact approximately 0.17 acres of sparsely forested land. The trail has been designed to avoid large trees where possible, and will impact a total of 23 trees larger than 6 inches. The largest of these include one 15-inch oak and three 10-inch oak trees. The trail improvement will join two existing trails, both enhancing the recreational value of the existing trails and improving the safety benefits for pedestrians, cyclists, and motorists in the Mount Vernon area. The trail extension may increase the use of bikes to commute rather than personal vehicles, improving quality of life in the area by decreasing congestion and air/noise pollution. The trail extension is also anticipated to have a positive impact on the East Parking Lot, since it will direct cyclists and recreational pedestrians away from the East Lot, improving safety conditions for cyclists, pedestrians, and drivers.

## **5. Mitigation**

### **5.1. *Vegetation and Visual Impacts***

In order to minimize any adverse impacts to vegetation, the Preferred Parking Alternative was designed to minimize the removal of trees and other vegetation. Additionally, trees and other plants located adjacent to construction areas would be protected. Landscape plans would be developed to restore and stabilize the cleared or disturbed areas and plantings would be added around the new parking areas to stabilize the existing vegetation and create a visual buffer. Plantings also would be added between the trail extension and the GWMP along the East Parking Lot as a visual and physical buffer between trail users and motorists. Any mitigation plantings along the Parkway would be derived from the 1932 Mount Vernon Memorial Highway Plantings Plan adapted to modern standards, which include the use of native plants rather than exotics.

### **5.2. *Water Quality***

Water quality impacts would be mitigated by structural and non-structural methods. The use of best management practices (BMP), erosion and sediment control measures, porous pavement, and unpaved overflow parking area would be used to address water quality issues.

### **5.3. *Stormwater Management***

Based on preliminary water quantity calculations, the storage requirement to mitigate the increased runoff from the site of the expanded West Lot is approximately 9,000 cf. Due to the existing topography of the site, the impact of constructing above ground water quantity detention would be inconsistent with the conservation program that is intrinsic to the historical program of Mount Vernon. Therefore, water quantity storage would be provided using underground detention devices within the footprint of the parking lot construction. A porous pavement may be used if found applicable.

Depending on the anticipated usage of the overflow lot, utilization of a geotextile ground reinforcement grid (such as TURFBLOCK, or HY-TEX) may be possible. In general, the criterion for use of geotextile ground reinforcement is driven by the amount of daily traffic as well as the weekly and seasonal variation in traffic patterns. The geotextile ground reinforcement is best suited for a situation of ‘occasional’ traffic that does not kill the underlying grass that interlocks with the grid. The intent of such ground reinforcement systems is to stabilize the ground with a non-biodegradable geotextile mesh that both accepts normal automotive traffic loads and allows grass growth through the geotextile membrane. Geotextile ground reinforcement has several advantages over gravel — it requires less maintenance (limited to normal grass mowing), results in less impervious area, is more aesthetically pleasing than gravel (generally looks like a grass field), and is generally more cost-effective.

## 6. Environmentally Preferred Alternative

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which is guided by the Council on Environmental Quality (CEQ) regulations. CEQ regulations provide direction that the “environmentally preferred alternative is the alternative that would promote the national environmental policy as expressed in NEPA’s Section 101. Generally, this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves, and enhances historic, cultural and natural resources.” (Question 6a, “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations” [40CFR 1500-1508] Federal Register Vol. 46 No. 55, 18026-18038, March 23, 1981)

The No Action Alternative, which maintains the status quo regarding parking for Mount Vernon visitors, is the environmentally preferred alternative since it provides for the preservation of the NPS’s natural resources and maximizes protection of the biological and physical environment. The No Action Alternative, however, does not meet the purpose and need for the proposed action. The current visitor parking available does not meet current or future projected parking needs, and parking in the circle would not be alleviated, thus continually impacting the cultural landscape for the area. The Preferred Build Parking Alternative would provide for visitor parking and eliminate parking on the circle. In addition, the Preferred Trail Improvement Alternative meets the third project purpose of improving safety for pedestrians, cyclists, and motorists.

## **7. Commitments and Resources**

### ***7.1. Irreversible and Irretrievable Commitment of Resources***

The implementation of the Preferred Build Parking Alternative and Preferred Trail Improvement Alternative would result in the irreversible and irretrievable commitment of funds by NPS for the planning, design, and construction of the proposed actions. Resources in the form of construction materials and labor, fuels and other energy sources for vehicles and equipment also would be committed with the implementation of the preferred alternatives. Land from both Mount Vernon and GWMP currently used for open space would be converted to parking use.

### ***7.2. Unavoidable Adverse Environmental Affects***

The implementation of the Preferred Build Parking Alternative and the Preferred Trail Improvement Alternative would result in long-term, unavoidable construction-related impacts to Park resources, including clearing 1.36 acres of Park land for additional parking and 0.17 acres for the trail extension. A total of 140 trees greater than 6 inches in diameter will be impacted (115 for the West Lot expansion, two for the overflow lot, and 23 for the trail extension). Appendix B lists the surveyed and impacted trees in the survey area. There will also be a long-term impact to migratory birds and a short-term impact to wildlife habitat.

### ***7.3. Local Short-Term Uses and Maintenance/Enhancement of Long-Term Productivity***

The implementation of the preferred alternatives would require a short-term investment of construction dollars and materials. In the long-term, the safety of motorists, pedestrians, and cyclists would be enhanced, and visitors to Mount Vernon would be adequately accommodated. Maintenance costs for the NPS associated with the circle may decline slightly, although the NPS also will be responsible for maintaining the trail extension. Maintenance and operation costs for Mount Vernon will increase as a result of the new parking spaces, especially for the overflow lot behind the Mount Vernon wall, which will require additional security measures. The wall currently provides security and channels all visitors through the main gate or another checkpoint. With the new opening in the wall, additional security measures needed may include additional lighting and signage for visitors, fencing to restrict visitor access to the main gate, and additional personnel for enforcement.

## **8. Compliance with Environmental Laws and Regulations**

There is no General Management Plan in force for the GWMP. The Capper-Cramton Act, the GWMP enabling legislation, defines three major roles for the park:

- To preserve the Potomac River shoreline from pollution and commercial development
- To provide for a variety of recreational needs of the Washington, D.C. metropolitan area
- To provide a scenic memorial roadway to the nation's capital and the Mount Vernon estate

It is the current mission of the GWMP to protect these values and the unique character of the Parkway.

Ensuring the GWMP is maintained and operated in a safe manner supports its continued use and enjoyment as a scenic, recreational, and transportation resource. Maintenance activities, however, must be sensitive to the natural features and resources that are the setting for the Parkway and its recreational functions. The proposed actions would be undertaken consistent with the following regulations and plans.

### ***8.1. National Park Service Organic Act of August 25, 1916***

This act states that the fundamental purpose of national parks is “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” The Preferred Build Alternative is anticipated to have a minor impact on Park resources as a result of the expansion of the West Parking Lot. The Trail Improvement Alternative is anticipated to modify Park resources, but have an overall positive impact due to the safety and recreational benefits to pedestrians and cyclists in the area.

### ***8.2. National Environmental Policy Act (NEPA)***

This Environmental Assessment (EA) and resultant decision documents provide disclosure of the decision-making process and potential environmental consequences of the alternatives. This EA will be available for a 30-day public review and comment period, after which the NPS and FHWA would decide if the proposed action is significant enough to prepare an environmental impact statement (EIS). If an EIS is not required, the NPS National Capital Region Director and the FHWA Eastern Federal Lands Highway Division Engineer would jointly sign a Finding of No Significant Impact (FONSI). Together this EA and the FONSI would conclude the NEPA compliance process for this project.

All comments and/or questions can be directed to either:

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FAX (703) 289-2598

### **8.3. *National Historic Preservation Act of 1966***

This act requires federal agencies to establish programs for evaluating and nominating properties to the National Register of Historic Places. Section 106 of the act mandates that federal agencies take into account the effects of their actions on properties either listed on the National Register or eligible to be listed, and to give the Advisory Council on Historic Preservation a reasonable opportunity to comment on said actions, if appropriate. The GWMP and Mount Vernon Estate are listed on the National Register of Historic Places (NRHP), and Mount Vernon is a National Historic Landmark. No impacts on historic resources are anticipated.

### **8.4. *Clean Water Act of 1972, as Amended***

The act seeks to restore and maintain the chemical, physical, and biological integrity of the nation's water by a variety of means. Section 404 of the act directs wetlands protection by authorizing the U.S. Army Corps of Engineers to prohibit or regulate, through a permit process, discharge of dredged or fill material into the waters of the United States, including wetlands. Actions described in this document would comply with the requirements of Section 404 of the Clean Water Act and other applicable federal, state, and local regulations.

Water quality in the project area would be protected by the implementation of erosion and sediment controls, such as silt fencing, straw bales, and sediment traps, as needed. Disturbed areas would be stabilized by reseeding and mulching. A sedimentation and erosion control plan would be prepared as part of the construction documents for the project(s). A wetlands permit would not be required since wetlands will not be impacted by this project.

In addition, mitigation measures will be implemented for stormwater drainage. For the West Lot expansion, porous pavement, underground pipes that discharge water through a weir — or any other measures that meet federal, state, and local regulations — may be used for quantity storage. The overflow parking area is recommended to include a geotextile ground reinforcement grid, depending on the anticipated usage of the overflow lot.

### **8.5. *Executive Order 11990, Protection of Wetlands***

This executive order (EO) requires federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's mission, including agency construction and improvement

actions. If there is no practicable alternative to the proposed action, the agency is required to take all practicable measures to minimize harm to wetlands that may result from the action.

The Fairfax County Wetlands Board was consulted regarding the wetlands requirements for this project. A member of that department reviewed the project map to determine if wetlands would be impacted. According to their maps, it does not appear that any large streams are included in the snapshot of the project area. However, other small wet areas may exist on site that do not show up on the map and can only be verified by a field check. At this time, it has been determined that a wetlands permit is not required because there is no encroachment of the project into known wetlands, but that a more detailed survey of the potential area of impact needs to be completed prior to construction.

## **8.6. *Executive Order 11988, Floodplain Management***

This EO requires federal agencies to determine whether proposed actions, including construction and improvements, would occur in a floodplain. If the proposed action is located in a floodplain, the agency is required to consider alternatives to avoid adverse effects and incompatible development in the floodplains. If there is no practicable alternative to development in a floodplain, the agency is required to design or modify its action in order to minimize potential harm to or within the floodplain.

According to FEMA maps of this area of Fairfax County, there is no encroachment into existing floodplains.

## **8.7. *Endangered Species Act of 1973***

Section 7 of the Endangered Species Act directs all federal agencies to use their authority in furtherance of the purposes of the act by carrying out programs for the conservation of rare, threatened, and endangered species. Federal agencies are required to consult with the U.S. Fish and Wildlife Service (FWS) to ensure that any actions authorized, funded, and/or carried out by the agency do not jeopardize the continued existence of any listed species or critical habitat.

Informal consultation pursuant to the Endangered Species Act was initiated via a letter request to the Virginia Department of Game and Inland Fisheries (VDGIF), Virginia Fish and Wildlife Information Service, to FWS, and to the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR).

Of the four state or federally listed rare, threatened, or endangered species in Fairfax County, the Bald Eagle is the only species known to inhabit the project area according to VDGIF. A detailed survey of the impacted areas will need to be completed before work begins to ensure that these species will not be impacted by this project. There is expected to be no impact on any federally listed or proposed species or their designated habitat, according to the FWS. There is expected to be no impact on plant or insect threatened and endangered species based on correspondence with DCR. There is no indication of State Natural Area Preserves under DCR's jurisdiction, and it is anticipated that this project will not adversely impact any natural heritage resources.

## **9. Public Involvement and Agencies Coordination**

### **9.1. Public Involvement**

The public has been involved with this project on two levels. First, the Stakeholders Participation Panel (SPP) is composed of citizens who represent the interests of the community near Mount Vernon. These citizens were appointed by Fairfax County Supervisor Gerry Hyland, who also sits on the panel. Regular meetings have been held between the FHWA, NPS, the MVLA, and the SPP to discuss the project and alternatives, and to receive feedback and guidance from these groups. The SPP was comprised of the following members:

- Jim Cossey, Committee Chair, Mount Vernon Council of Citizens Associations (MVCCA) Transportation
- Frank Cohn, Committee Vice Chair, MVCCA Transportation
- Jim Davis, Environment and Recreation Committee, MVCCA
- Earl Flanagan, Mount Vernon Transportation Commissioner
- Mark Gionet, Wessynton At-Large
- Sheldon W. Hoenig, Wessynton Homeowners Association
- Milt Kabler, Wessynton Homeowners Association
- Chris Ragland, Wessynton At Large
- Dallas Shawkey, MVCCA Public Safety
- Larry Zaragoza, Environment and Recreation Committee, MVCCA

The general public was involved through workshops and written comments. At the two public workshops (June 26, 2002 and January 21, 2003), citizens were given the opportunity to discuss their thoughts and concerns with representatives from the FHWA, NPS, VDOT, and Fairfax County. A summary of the responses from the public meetings is provided in Appendix E. A third public workshop was held January 29, 2004 to present the recommendations in this document.

### **9.2. Agency Coordination**

The following agencies and organizations have jurisdictional approval authority relative to the recommendations developed as part of this study or are anticipated to have a vested interest in the study results.

- U.S. Department of Transportation, Federal Highway Administration, Eastern Federal Lands Highway Division
- U.S. Department of Transportation, Federal Highway Administration, Virginia Division
- U.S. Department of Interior, National Park Service, GWMP Unit
- Honorable James P. Moran, U.S. House of Representatives
- Honorable Gerry Hyland, Supervisor, Mount Vernon District, Fairfax County

- Honorable Anthony H. Griffin, Fairfax County Executive
- Fairfax County, Virginia, Department of Public Works and Environmental Services
- National Capital Planning Commission
- U.S. Commission of Fine Arts
- Virginia State Historic Preservation Officer
- Advisory Council on Historic Preservation
- Virginia Department of Transportation
- Fairfax County Department of Transportation
- Fairfax County Department of Planning and Zoning
- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- Mount Vernon Ladies' Association
- Fairfax County Wetlands Board

The individuals and organizations listed below are anticipated to have either an interest in the study area and/or safety improvement recommendations developed:

- U.S. Coast Guard
- Metropolitan Washington Council of Governments
- Washington Metropolitan Area Transit Administration
- Washington Area Bicyclists Association
- Fairfax County Non-Motorized Transportation Committee
- Virginia Department of Conservation and Recreation
- Virginia Department of Environmental Quality
- Wessynton Homeowners Association
- Mount Vernon Concerned Citizens Association
- Interstate Commission on the Potomac River
- Potomac Heritage Partnership
- Friends of the Potomac
- Honorable John Warner, U.S. Senate
- Honorable George Allen, U.S. Senate
- Commonwealth of Virginia Governor Mark Warner
- Sierra Club, Virginia Chapter, Mount Vernon Group

## **10. List of Preparers and Reviewers**

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Satvinder Sandhu, Environmental Compliance Engineer

### **George Washington Memorial Parkway**

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Vince Santucci, Chief Ranger

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Ann Brazinski, Natural Resource Manager

Brent Steury, Natural Resource Manager

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### **Coastal Carolina Research, Inc.**

Loretta Lautzenheiser, Principal Investigator and Archaeologist

Jennifer Bradley Stewart, Architectural Historian

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## 12. Distribution List

- U.S. Department of Transportation, Federal Highway Administration, Eastern Federal Lands Highway Division
- U.S. Department of Transportation, Federal Highway Administration, Virginia Division
- U.S. Department of Interior, National Park Service, George Washington Memorial Parkway Unit
- Honorable James P. Moran, U.S. House of Representatives
- Honorable Gerry Hyland, Supervisor, Mount Vernon District, Fairfax County
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# **Appendices**

***Appendix A — Additional Existing Conditions Information***

***Appendix B — Tree Survey***

***Appendix C — Agency Correspondence***

***Appendix D — Memorandum of Agreement***

***Appendix E — Summary of Public Involvement Process***

***Appendix F — List of Wildlife***